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**ANNUAL REPORT OF THE
SECRETARY OF AGRICULTURE
AND COMMERCE**

1938

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(From November 26, 1938)

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ANNUAL REPORT OF THE SECRETARY OF AGRICULTURE AND COMMERCE

December 31, 1938

His Excellency
The PRESIDENT OF THE PHILIPPINES
Manila

SIR:

Pursuant to the provisions of section 91 of the Administrative Code, I have the honor to submit the following report of the Department of Agriculture and Commerce for the calendar year 1938:

INTRODUCTION

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The changing Philippine economy has awakened public consciousness to the many complicated problems involved in our economic struggle. Our present problems are no longer confined to purely technical matters, such as the control of pests and diseases, effective means of cultivation, evolution of desirable strains of crops and breed of animals, the growth of individual farm business, and those other fundamental questions which have been more or less already threshed out by means of researches in the past, but involve primarily the practical application of fundamental principles already established. The growing complexities of economic problems not only here but in all parts of the world necessitate government intervention in the regulation of crop production and marketing, of factory outputs and of the movement of commercial products both in the local and foreign markets. The need has arisen for collective as well as individual planning in the development of agricultural enterprises, improvement of export

and domestic markets, establishment of credit facilities, and solution of other kindred problems. In this country, as elsewhere, the tendency has been for increased government participation in the activities affecting the development of a sound economy, among which may be mentioned the settlement of the vast areas of agricultural lands in the unsettled or otherwise sparsely populated regions of the country; the wise utilization and exploitation of our timberlands, fishing grounds, mineral and other natural resources with which the country abounds; the dissemination of scientific methods and practices of agriculture and industries calculated to bring about maximum efficiency in the farm and business operation; and the establishment of home industries and commercial manufacturing enterprises as an effective means of carrying out our program of industrialization.

The major activities of this Department have been so carried out as to produce results contributory to the realization of all these important objectives. Special efforts have been exerted to apprehend violators of laws, rules and regulations regarding the acquisition, exploitation, and/or conservation of public lands, forest areas, fishing grounds, and mineral resources. To facilitate and help carry out successfully the project of land settlement, steps have been taken to speed up the proper classification of our public domain and the survey and subdivision of public lands into lots for disposition to properly qualified settlers or public land applicants. To hasten the progress of industries, industrial research work has been stimulated in an effort to find the proper solution to important industrial problems that have heretofore stood in the way of progressive industrial development. Extension and educational work has been carried out more extensively than heretofore, not only to apprise the people of what the

Government is doing for their individual and collective welfare, but also to keep them duly informed and enable them to profit by the latest discoveries in science which affect their life's calling be it agricultural, mining, manufacturing, merchandising, or any branch of productive pursuit. Proper steps have been taken to interest our Government in providing Filipino farmers, business-men, and industrialists with credit facilities with which to enable them to carry on their business or profession without going to unscrupulous money lenders and usurers for help.

THE AGRICULTURAL AND TRADE SITUATION

The system of agriculture in the country is fast undergoing important changes. Reassuring evidence of systematic agricultural planning in which the principles of crop diversification are taken into consideration is noticeable everywhere. The general tendency in the rural districts has been towards the production of the staples needed for home consumption and of certain products for export which do not depend upon the American market. There has been an unprecedented interest in the planting of fruit trees of economic value, in the cultivation of home gardens, in the raising of poultry and swine and other livestock which constitute additional sources of farm income. Likewise, the growth of home industries including cloth and hat weaving has hit a remarkably fast stride. That diversified farming is fast taking shape is indicated by the increased planting of economic crops heretofore considered of secondary importance. For instance, wide areas have been planted to coffee and cacao in the Bicol region, Mindanao, the Visayas, Mindoro, Tayabas, Batangas, and Mountain Province. Fruit trees, such as the avocado, caimito, chico, mango, lanzon, citrus, pili nut, and others and root crops and

vegetables have also been planted quite extensively in different provinces. Likewise, the cultivation of Bermuda onion, cotton, and derris has shown considerable increase. Thirty-three provinces led by Nueva Ecija and Batangas now grow Bermuda onion. During the year there were 704 hectares planted to Batangas cotton, principally in Oriental Misamis, Occidental Misamis, Cebu and Iloilo, which produced 245,000 kilos of floss with seeds and 782 hectares planted to *kopas puroao* or Ilocano cotton in Ilocos Norte, Ilocos Sur and La Union which produced 262,983 kilos of floss with seeds. The area planted to derris now covers about 2,850 hectares in 39 provinces led by Cebu, Iloilo, Bohol, Leyte, Zamboanga, and Oriental Negros.

Many factors contribute to all these significant changes, the most important of which are the limitation of our export to the United States and the low prices of products which have not shown any sign of improvement. As a result of the operation of the Limitation Act and the low prices that prevail for our important export products—sugar, tobacco, abaca, copra, and other products—farmers engaged in the production of these crops have undergone serious difficulties. The situation was made more difficult in certain places by the adverse weather conditions which characterized the year 1938 and which caused considerable destruction to cultivated crops. In the Bicol region considerable areas have been withdrawn from the cultivation of abaca and planted to other crops, primarily food crops. In some coconut regions coconut plantations have been neglected because of the sad plight of the coconut industry. Most of the difficulties of this industry have been caused by the much-discussed coconut oil excise tax, the effect of which is reduction in the price of copra and other coconut products. Despite, however, the temporary depression in the abaca and coconut industries,

some new plantings were done in newly-opened lands in Mindanao with the hope that in the years to come the situation would materially improve.

There was a time when it was feared that the 1938-1939 rice crop would be much below normal on account of the effects of floods and the serious drought, believed to be the worst yet experienced in this country during the last 20 years, which occurred in the Central Plains of Luzon, affecting the principal rice growing provinces. After undertaking a conscientious survey of the situation, however, it was found that the damage caused by the adverse weather conditions would be more than compensated by the increase in the area planted to rice, particularly in Mindanao and the Visayan provinces where a bountiful harvest was obtained. A check-up of the rice harvest for the year 1938-1939 confirmed the early finding that there need not be any fear of possible rice shortage.

Unfavorable weather conditions delayed the harvesting of tobacco in certain provinces resulting in a crop of poor quality and decrease in prices. The depression in the tobacco industry has not been confined to the local trade. There was also a serious decline in tobacco exportation which may be explained by the fact that the civil war in Spain has paralyzed the Philippine tobacco trade with that country which normally takes almost 50 per cent of our tobacco exports. The only factors that in a way, sustained the industry during the year were the export of cigars to the United States and the growth of the local cigarette industry.

The mining industry has more than held its own. Its growth and progress have been steady and as far as prices are concerned, there is no depression in the mining business.

There was a considerable decline in the exportation of lumber and timber owing to the restriction imposed

by the Japanese Government on the importation of lumber and timber into Japan as a result of the Sino-Japanese conflict. However, a marked activity in the local market for timber and lumber was registered during the year so that despite reduced exportation, there was a slight increase in the amount of timber cut.

On the whole, general business sentiment in the Philippines during the year 1938 was fairly good although a distinct note of caution was noticeable due to the low prices realized from the principal export products to the United States and other world markets. Despite the prevailing low prices of our principal export products, there is a decided improvement in the condition of life on the farm and in business circles.

RESEARCH

One of the healthiest signs of the gradual, even if slow, material progress going on in our midst is the notable increase in the appreciation on the part of the public of the value of research work in the pursuit of activities affecting our very existence. Interest in research has ceased to be a monopoly of the scientists engaged in different phases of experimental work. To the farmer, the industrialist, and the manufacturer, the function of research has become a recognized necessity for the continuous improvement and survival of their respective trade or occupation in this highly competitive age.

Much of the claim of the Department of Agriculture and Commerce to constructive public service is rooted in its research activities embracing not only fundamental questions but also practical problems in the establishment of a stable national economy. The practical application of the results of researches already accomplished has aided materially in the progress and development of our economic resources.

There are certain classes of research that require relatively long periods of time before results of any practical value could be obtained. To these belong studies on pure science which delve into the fundamentals of basic problems, the solution of which opens the avenue for further research work in order to be of any benefit to the needs of our daily life. Researches on plant introduction and acclimatization, biological studies of the different species of plants and animals, determination of the causes of plant and animal diseases and their control, studies on botany, silviculture, entomology, and plant pathology and chemical researches on natural products, such as analysis of the physical and chemical properties of vegetable and essential oils, resins, woods, and other products, the basic data of which are of fundamental importance for purposes of industrialization, belong to this type of research. The greater bulk of our research projects, however, pertains to applied science. During the year 1938, 53 research projects were completed. At the end of the year, 161 projects are still in progress. Some of the projects completed deserve mention here.

In connection with industrialization, a process of utilizing rice hull ash for the preparation of water glass, abrasive soaps, and black pigments, which have important commercial value, has been perfected. The requirements for liming and deliming hides have been determined, and by a process of chrome tanning which may be considered a significant advance in the development of the leather industry, the Government has succeeded in producing leather of very good quality. Improvements in the process of analyzing Philippine products with important commercial possibilities, such as copals, have been made. Likewise, considerable headway has been achieved in the process of manufacturing clay asbestos shingles; extraction of coloring

matter used as dyes from sawdust of certain Philippine woods; production of ethyl alcohol from cassava and sweet potatoes; degumming and bleaching of decorticated ramie fiber, and the manufacture of high-grade vinegar from sweet potatoes and cassava. The use of deodorized and refined coconut oil as a substitute for imported and costly vegetable oil for canning purposes has been quite successfully demonstrated in connection with fish canning. The refined oil is also suitable for medicinal and pharmaceutical purposes.

Along the line of agricultural improvement, results of our various experiments on the use of fertilizer have convinced many farmers of the importance of this farm practice as a means of increasing farm efficiency. Desirable strains of important crops, including palay, derris, and abaca, have been isolated; a number of plant varieties introduced into the Philippines; and improvement in native crops secured through breeding and selection. The increased use of modern farm implements and approved practices of cultivation have also been the outcome of successful research work along this line, brought home to the farming public by actual demonstration.

In the line of animal improvement, certain problems in the control of animal diseases have been finally settled. For instance, the fact has been determined that greater immunity is conferred by rabies vaccine administered in multiple injection than in one injection. The preparation of crystal violet hog cholera vaccine and a desirable tetanus toxoid has been perfected. Livestock improvement work through the use of imported pure breeds has gained considerable progress.

Problems in forest management, protection, and utilization as well as those of efficient and economical exploitation of the mining industries have also been the subject of research, the results of which are of decided utility in the further development of these industries.

INDUSTRIALIZATION

There has been no departure from the policy of giving industrial research all possible support and encouragement to hasten its progress and produce results which may be of practical utility to the economic development program of the Commonwealth. To the list of industrial projects turned over to the National Development Company in 1937 for commercial exploitation, no new project has been added, but the Industrial Committee of the Department has been fully occupied with the study of a long list of industrial possibilities on which experiments are in progress. The trip to the United States and Europe undertaken by the former Secretary of Agriculture and Commerce, Hon. Eulogio Rodriguez, which lasted nearly five months, had for its object the acquisition of first-hand information on the modern methods and technique of industrial development employed in those highly advanced countries from which the Philippines might profit. It was in the course of this trip that the services of Dr. Raymond Bacon, a former director of the Mellon Institute, were availed of by the Philippine Government in its effort to adjust its research activities to the needs of the country for economic and industrial development.

LOCUST SITUATION

At the beginning of the year under review, 26 municipalities were infested with locusts covering an area of 278 hectares. About the end of the year, only 9 municipalities in 5 provinces remained infested and the area covered by the infestation was only 90 hectares. The marked improvement of the situation is attributable to the untiring efforts of municipal and provincial officials who are directly charged with the duty of eradicating this pest and the cooperation willingly ex-

tended by the fieldmen of this Department who were instructed to extend assistance to the officials concerned to hasten the complete eradication of this great scourge of agriculture.

About the month of August, the Director of Plant Industry began releasing funds to least-infested provinces as aid of the Insular Government in the eradication of this pest. The provinces of Agusan, Bulidnon, Albay, Camarines Sur, Cotabato, Davao, Tiyabas, Mindoro, Leyte, Laguna, Sorsogon, and Surigao, were benefited by the P10,000 first released by the Bureau with the approval of the Department Secretary. The amount given to each province depended on the extent of infestation by locusts or other plant pests or on the seriousness of the infection by plant diseases.

SOIL SURVEY

The soil survey project, which was started in 1934 under a Soil Survey Committee created that year and now composed of the Under Secretary of Agriculture and Commerce as Chairman and the Directors of the Bureaus of Science, Plant Industry, Forestry, Lands, Mines, and Weather Bureau as members, with Dr. M. M. Aleante, Soil Technologist of the Bureau of Science, in charge of carrying out the work, was extended from Luzon to the Visayan provinces during the year under review. Without any fixed appropriation for the soil survey project, it has been possible to carry on the work only through the joint efforts of these different bureaus each of which has been required to contribute certain number of personnel to constitute the present soil survey staff. Under the direction of the Soil Survey Committee, a complete survey of Philippine soils is being done as fast as facilities permit. The necessary field work is facilitated by the employment of fieldmen of the Bureaus of Plant Industry and Forestry; the data on climate gathered by the Weather

Bureau; and the soil-survey maps prepared by the Bureaus of Lands and Mines.

It is gratifying to note that both the National Economic Council and the Joint Preparatory Committee on Philippine Affairs, fully recognizing the need and the value of this work in relation to the development of the country's economic resources, have recommended a thorough and nation-wide agronomical (soil) survey of the Philippines.

Although up to date already 21 provinces have been completely soil-surveyed, seven of them in 1938 so far only the reports on four provinces have been published. Those are the reports for Rizal, Batacan, Cavite, and Batangas, the report for Batangas having been released in 1938, the reports for the first three during the years previous. At the close of the year, the report for the province of Pampanga was in the process of publication and those for the provinces of Tarlac, Nueva Ecija, and Laguna in their final stages of preparation. The field and laboratory work for the provinces of La Union, Ilocos Sur, and Abra have been completed; the laboratory analysis of the soil samples from the provinces of Bataan, Zambales, and Nueva Vizcaya is in progress and the field work in the provinces of Bulacan, Occidental Negros, Oriental Negros, Cebu, and Tayabas practically completed.

For the purpose of correlating the data obtained from the field survey and laboratory analyses of the different soils found in each province with the actual requirements of farm lands to improve crop yield, fertilizer experiments with the staple crops of each province surveyed are being undertaken. The field experiments now in progress include the use of fertilizer for both upland and lowland rice, coconut, citrus, lanzones, and other fruit trees. The results obtained in rice experiments during the year 1938 were very encouraging.

From the soil survey report published in its final and complete form may be gleaned the inestimable value of this work to proper agricultural planning for maximum efficiency in farm operations. The soil survey report contains, among other things, a general description of the province surveyed, its location, topographic features, irrigation and drainage, transportation and market facilities, and the character of its population. It gives a brief history of the agriculture of the area, the treatment to which the soils had been subjected in the past, the present system of cultivation used, and the principal crops grown. The general characteristics of the soils of the region are described and the classification of the soils into groups on the basis of their characteristics explained. The various soils are compared indicating the differences between them and explaining the soil-forming processes which have brought about such differences. Each type of soil is described as to its profile, minor variations, topography, condition of drainage, crops, fertilizer and land values, and future possibilities. The map which supplements the soil survey report shows the area occupied by each soil type and its distribution in the area covered by the report. This map also indicates the natural features including the streams and bodies of water, marshes, and prominent elevations, and the artificial features, such as roads, railroads, towns, cities, and other important constructions. From all these valuable data, an efficient and economical system of farm management can be planned and carried out for bigger farm units. The equally important problems of conserving the productivity of the soil through systematic crop rotations, the use of proper fertilizers, the control of pests, and the prevention of soil erosion can also be approached scientifically and effectively. Such basic data on soils are needed particularly in the

regions of the Philippines, like Mindanao and Sulu, where the project will be extended in 1939, which are just being opened for settlement and exploitation.

DEVELOPMENT OF MINDANAO AND SULU

In the realization that the development of Mindanao and Sulu, which has for years remained not only a problem but a challenge to the resourcefulness and constructive genius of the Filipino people, is indispensable in the establishment of a lasting and stable political, social, and economic foundation of an independent Philippines, the Philippine Government has buckled down with increased determination to carry out a systematic, speedy, and effective exploitation of the fertile resources of Mindanao and Sulu. The work of developing this region involves every phase of activity in nation building. In its present state, it may be said to cover two important phases, the first and the most important being the legal disposition of its vast forest resources and public lands and the encouragement of settlers and homeseekers to establish permanent abode therein; and the second, the intensification and expansion of governmental activities already being undertaken in the inhabited places and linking these activities with those of the newly-settled areas.

In the early part of the year the Department of Agriculture and Commerce made a comprehensive outline of its various activities in connection with the general development work of Mindanao and Sulu. The forces of the Department already at work in Mindanao have been bolstered up and given instructions not only to coordinate their different activities but also to work in close cooperation with the other forces of the Government identified with the Mindanao project. The contribution that this Department has made to the progress of this gigantic government undertaking dur-

ing the year 1938 is hard to estimate. Suffice it to say that the Department has, among other things, intensified its activities on the classification of public lands to delineate alienable and disposable portions thereof from the areas needed for forest purposes, the survey and subdivision of alienable and disposable public lands into small lots for settlers and homeseekers, and the disposition of subdivided lots to qualified applicants. Portions of public lands along national highways or proposed roads have been subdivided first to attract settlers. With the P2,500,000 appropriated under Commonwealth Act No. 347 for classification, survey, and subdivision of public lands, the progress of this work has been accelerated. The classification of lands opened for settlement with respect to crop adaptability has also been undertaken to facilitate the proper allocation of homeseekers according to the nature of their farm experience. For instance, settlers coming from the rice-growing provinces are sent to regions in Mindanao adapted to rice culture; those coming from the tobacco or coconut provinces, to regions adapted to the culture of tobacco or coconut, etc. The work of setting aside tracts of land for non-Christians has also been started.

Similarly, efforts have been exerted to hasten the progress of the work on reconnaissance or forest surveys on proposed timberlands, survey of grazing lands, and the exploitation of coal, iron, and other mineral deposits. The survey of other natural resources found in that region including fisheries and inland fish ponds has also been started to determine their possibilities for systematic development.

In the populated regions, there has been general intensification of activities in agricultural and livestock promotion as well as in the establishment of cooperative marketing associations and other cooperative

efforts to facilitate the marketing of local agricultural and industrial products and the purchase of commodities needed by the inhabitants of the community. Through properly conducted extension work which includes the dissemination of improved agricultural practices, the control of plant pests and diseases, and the propagation and distribution of improved seeds and plant materials produced in the local experiment stations and seed farms, much progress has been attained in the promotion of agricultural industries. Likewise, the promotion of livestock has been accelerated through proper control of animal diseases and systematic campaigns to encourage the production of improved types of animals, including horses and cattle, and the raising of swine and poultry on a more extensive scale. All these activities are automatically extended to newly-settled regions to give the settlers all possible aid and encouragement in the planning and carrying out of their farm activities and in the establishment of model settlement communities.

The Department of Agriculture and Commerce has taken every available opportunity to make recommendations to the proper branch of the Government for the proper carrying out of the government's mission in Mindanao and Sulu whenever it felt such recommendations in order for the good of the service. It placed before the National Economic Council squarely a plan of developing Mindanao through a systematic method of colonization believed to be most practicable and effective under the conditions obtaining therem. The original recommendation for the digging of artesian wells in places intended for settlement which was accorded favorable action by the Department of Public Works and Communications, originated from the Department of Agriculture and Commerce. Among many other things, the Department has also recommended

the establishment of health units and educational centers for the benefit of the settlers establishing themselves in Mindanao.

For the purpose of making the varied activities of this Department in Mindanao more effective and in harmony with those performed by other branches of the Government and facilitating the present development work in that part of the country, special efforts have been exerted to consolidate and coordinate these varied activities under a specially-designated coordinating officer whose duties include that of a liaison officer between the Department of Agriculture and Commerce and the Commissioner for Mindanao and Sulu with whom all the personnel of the Department have been instructed to cooperate in matters affecting the development of the agricultural, commercial, industrial, and natural resources of that region. As a further measure of securing every possible cooperation and coordination of activities in that region and of facilitating action on all matters pertaining to colonization with which the Department of Agriculture and Commerce has something to do, the Commissioner for Mindanao and Sulu was designated as Delegate of the Secretary of Agriculture and Commerce in all matters pertaining to agricultural colonies in Mindanao and Sulu.

THE JOLO LAND PROBLEM

To better understand this problem, it would be necessary to recall to mind the actual conditions and circumstances existing at the time the lands in Jolo were surveyed and cadastral proceedings began in connection with the issuance of titles thereto. It has been observed that cadastral surveys were undertaken during the period of attraction when the Moros were educated and even induced so that they would willingly embrace the new form of government to which they tenaciously with distrust and suspicion. At that time

the Moros refused to have their lands surveyed unless assured that the Government would not collect anything from them in the form of cadastral costs so that apparently the members of survey parties had to give them this assurance to enable them to gain access to the land of the Moros and undertake the necessary survey. It is not, therefore, surprising that the Moros now refuse to pay cadastral costs incurred in the survey of their lands. These cadastral proceedings took place during the hectic days of the American administration in Mindanao and Sulu when internal disorders were prevalent so that legitimate property owners had to flee to the mountains for safety, thus enabling unscrupulous individuals to register lands, not their own, in their names. The foregoing constitute two of the root causes of the present Jolo land problem. The various angles of this problem may be graphically illustrated and summarized as follows:

1. Controversy over registered lots title to which had been issued way back in 1920, 1923, and 1926:
 - a. Conflicts between headmen, hadjis, pangimas or elders, or their heirs in whose names big tracts of land were registered on the one hand and their "sakops" on the other. In the course of cadastral proceedings the "sakops," through affidavits duly signed and authenticated by them, have allowed their lands to be registered in the names of their headmen.
 - b. Controversy between registered owners who, through fraud, deceit or otherwise, were able to have big tracts of land surveyed and registered in their names, and bona fide claimants and occupants who allege to be the lawful owners thereof;
 - c. Boundary disputes.
2. Controversy over lots comprised within the special land grants given to the sultans of Sulu or their datus near Marawi; these special land grants have been and are actually occupied and cultivated by adverse claimants who have already introduced considerable improvements thereon.

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c. Boundary disputes.

2. Controversy over lots comprised within the special land grants given to the Sultan of Sulu or his direct heirs. Apparently, those so-called grants have been and are actually occupied and cultivated by adverse claimants who have already introduced considerable improvements thereon.

3. Controversy over lots declared by competent courts as part and parcel of the public domain. These lots which have been declared public lands are also occupied and cultivated by claimants, some of whom have already filed tree patent applications covering the portions actually occupied by them. For some reason or other, these tree patent applications are still pending approval by the Director of Lands.

4. Controversy over parcels of land not yet adjudicated to any claimant and which are still pending hearing before cadastral courts.

In the order in which the foregoing problems are enumerated, this Office has either taken measures to help solve this mooted land problem or submitted for His Excellency's consideration under an indorsement of November 6, 1938, the following recommendations:

1. (a) and (b) Enactment of appropriate legislation with the end in view of reviewing and reopening those cases of registered lands, titles to which had been issued way back in 1920. As indicated in said indorsement of this Office, it is believed that this step is the only possible remedy to set the situation.

(c) In accordance with the desire of His Excellency, and pursuant to written instructions of this Office, the Director of Lands on November 23, 1938 directed the district land officer at Zamboanga to detail an assistant public lands inspector at Jolo with the necessary service personnel to help settle boundary disputes and expedite the amicable settlement of controversies that could be adjusted extrajudicially.

2. As to special land grants given to the Sultan of Sulu or his heirs, recommendation was made to the effect that the lands granted to Moro datus who are occupied and cultivated by legitimate owners other than the grantees, be substituted by other land grants in Lavi-Lavi, Sarangani or in any of the areas mentioned fit for the purpose. As far as I know, calls for appropriate legislation representing to that effect was accordingly made to His Excellency.

3. In connection with the controversy over lots declared by competent courts as part and parcel of the public domain, the Director of Lands, acting under instructions from this Office, ordered the assignment of one of the lands inspectors of the Office of the Provincial Governor of Sulu to give tree patent and

other public land applicants the necessary advice, and help them expedite the preparation and filing of their respective applications.

4. In connection with the controversy over parcels of land not yet adjudicated to any claimants and which are still pending hearing before the cadastral court, it has been recommended that a campaign of information be conducted to enlighten the Moros on the advisability of appearing in the cadastral court to prevent the forfeiture through default of their property in favor of the Government or the registration of the same in the names of other persons. As an initial step, this Office addressed a letter, through the Office of the President to the Secretary of the Interior on November 16, 1958 suggesting the issuance of a circular to secure the cooperation of provincial and municipal officials who, in the performance of their duties, are daily in close contact with the people, to impress upon the minds of the Moros and other legitimate property owners the necessity and importance of appearing in cadastral hearings and asserting their rights over lands they claim their own and thereby minimize mistakes in the adjudication of land titles.

While the final solution of the Jolo land problem may yet be a long way off, it is hoped that the initial measures taken by this Department will help relieve the present tense situation in Jolo.

TEMPORARY PERMITS TO MINE AND EXTRACT ORE

Under the provisions of section 62 of Commonwealth Act No. 137, the Mining Act, a mining locator acquires the right of exploration and occupation from the date of the registration of the claim in the office of the mining recorder, but he is not entitled to mine or extract minerals from the claim for commercial purposes until a lease is granted thereon as provided in the said Act. In order to expedite and facilitate the operation of mines, the National Assembly enacted Commonwealth Act No. 309 on June 9, 1958 extending to an applicant of a mining lease opportunity to start mining operation during the pendency of his lease application. This Act provides, among other things, that an applicant for lease of a mining claim, whose application appears to be

prima facie well-founded is entitled before the lease is granted, to a temporary permit to be issued by the Secretary of Agriculture and Commerce, to mine and extract minerals from said claim for commercial purposes, subject to the payment of royalties provided in the Mining Act. It amends section 62 of Commonwealth Act No. 137.

Difficulty arises in case of a lease application which is the subject of an adverse claim. This is brought about by the fact that section 73 of the Mining Act provides, among other things, that upon the filing of any adverse claim, all proceedings, except the publication of the notice of application for lease, shall be stayed until the controversy shall have been settled or decided by a court of competent jurisdiction or the adverse claim waived. Commonwealth Act No. 309 does not amend section 73 of the Mining Act. As stated above, it only amends section 62 thereof. If under such circumstances all the proceedings were stayed, the question that comes up is: Is it advisable to issue a temporary permit to extract minerals under Commonwealth Act No. 309 if an adverse claim is already filed in the Bureau of Mines? To give effect to the spirit of Commonwealth Act No. 309, this Office decided to issue a temporary permit to extract minerals although there is an adverse claim filed in the Bureau of Mines, provided that the application has been found to be *prima facie* well-founded. The right of the adverse claimants, as well as that of the Government, is, however, safeguarded by the requirement that the granting of the permit is conditioned upon the filing of a sufficient bond to guarantee, among other things, the fulfillment of the terms of the permit and the payment of damages that may be caused to the adverse claimants or to the Government. Temporary permits

issued pursuant thereto are made to cover a period of six months only. Where, however, an adverse claimant institutes an action in court, a permit is not issued on the ground of lack of jurisdiction on the part of this Department because the matter is *sub-iudice*.

PROTECTION AND CONSERVATION OF GAME AND BIRDS

This Office secured the cooperation of the heads of other departments of the Government and the Chief of Staff of the Philippine Army whereby those of their heldmen fitted to help enforce the laws, rules and regulations for the protection and conservation of game and birds may be designated as deputy game wardens. The Department heads concerned have consented to the appointment of the public defenders and labor agents of the Bureau of Labor, the district engineers and assistant civil engineers of the Bureau of Public Works, and the supervising linemen of the Bureau of Posts as deputy game wardens. Accordingly, all these officials and employees have been designated by this Office as such. All game wardens and officials or employees required by law to enforce the rules and regulations for the protection and conservation of animal life have been enjoined to exert their utmost to make the campaign effective. To further insure the success of this campaign, Fish and Game Administrative Order No. 8, dated April 5, 1935, declaring certain designated areas closed to hunting, was renewed on July 15, 1938, the date on which the said order was to have expired. This campaign has for its purpose the proper education of the people on the importance of conserving and propagating wild animal life and preventing their extermination so that they may again be found in abundance in their natural habitat.

CAMPAIGN AGAINST DUMMIES

Decisive steps have been taken to curtail the undesirable practice of certain officials and employees of acquiring interests directly or indirectly in the exploitation of natural resources as dummies of foreign capitalists by taking advantage of their position in the Government. Rules and regulations regarding the acquisition of public lands, forest concessions, leases, license agreements, transport permits, commercial fishing boat licenses, mining and oil concessions in Mindanao and Sulu by officers and enlisted men of the Philippine Army, national or provincial officials, and other employees in that region have been prescribed under Administrative Order No. 59 issued by His Excellency, the President of the Philippines, on January 14, 1938.

Several complaints against forest concessionaires including prominent businessmen of Manila who were charged with operating forest concessions in Agusan and other places as dummies of foreign capitalists, have been looked into to determine their truth or falsity. The investigation is still in progress.

In the latter part of the year, investigation of the fishing activities of aliens in this country was started to verify the truth of reports received in this Office that many Filipinos are being used as dummies by Japanese capitalists who control the fishing industry in the rich fishing grounds of Palawan and elsewhere. Preliminary results seem to indicate that there is some truth in these reports.

THE CASE OF THE SAN JOSE ESTATE

The case of the San Jose Estate has already been decided in favor of the Government by the Court of First Instance of Manila in civil case No. 44937, entitled "Commonwealth of the Philippines, plaintiff

versus Mindoro Sugar Estate Co., *et al.*, defendants." The amount of P62,732 paid by the Mindoro Sugar Estate has been forfeited in favor of the Government together with 17,260.811 hectares forming the greater portion of the Estate, leaving to the Mindoro Sugar Estate 1,024 hectares, the maximum allowed by law to a corporation. A plan is under way to subdivide these 17,260.811 hectares into 10- and 20-hectare lots each for resale at cost to qualified public land applicants. A portion of it may be subdivided into 50- to 200-hectare lots for those who can afford to cultivate larger tracts.

APPEALED CASES DISPOSED OF

Under the provisions of section 4 of Commonwealth Act No. 141, the Director of Lands is charged with the duty of disposing of public lands alienable under the provisions of the Public Land Law. This duty carries with it the authority to decide claims to public lands, conflicts in public land applications, controversies between occupants and public land applicants, questions affecting preferential right of contending parties, violation of the provisions of the Public Land Law and of the Constitution of the Philippines affecting disposition of public lands, qualifications of public land applicants, and other matters related to the administration of lands of the public domain. The decisions of the Director of Lands are appealable to the Secretary of Agriculture and Commerce within the time prescribed by the provisions of Lands Administrative Order No. 6 promulgated pursuant to the provisions of section 79 B, Act No. 2711, section 5, Act No. 2874, now section 5 of Commonwealth Act No. 141, and Act No. 3038. The Secretary of Agriculture and Commerce also exercises appellate jurisdiction over cases decided by the Bureaus of Forestry, Commerce, Science, and Mines

During the year 1938, the Secretary of Agriculture and Commerce rendered 240 decisions and orders in cases appealed from the Bureau of Lands. One hundred and sixty-five of said decisions and orders affirmed, and 75 reversed or modified, the decisions and orders of the Director of said bureau. This Office entered 326 interlocutory orders requiring parties to file their respective memoranda and the Director of Lands to forward records within certain period. Among other things, the orders were either giving interested parties sufficient time to file their briefs, or extending the time for the presentation of the memoranda or briefs by the contending parties or their respective attorneys. Parties who had lost their cases in which decisions and orders rendered by the Bureau of Lands or by this Office had long become final sometimes filed petitions for relief under the provisions of section 14 of Lands Administrative Order No. 6. Twelve of said petitions were disposed of by this Department during the year 1938.

In the cases appealed from the Bureau of Forestry, 24 decisions were rendered by this Office in 1938, 19 of which affirmed and 5 reversed the decisions of the Director of the said bureau. Those decisions involved conflicts between different forest licenses, claims to forest lands, controversies between private claimants on the one hand and forest licencees or permittees on the other, and other questions affecting preferential rights of contending parties.

In the appealed cases from the Bureau of Commerce which involved registration of trade-marks and trade names and election of officers of rural credit associations, nine decisions were rendered by this Office during the year 1938, 7 of which affirmed and 2 reversed the decisions and orders of said bureau.

From the Bureau of Science, three cases were appealed to this Office affecting questions of preferential rights regarding tsiponos and fisheries. This Office rendered two decisions affirming, and another decision reversing, the orders of the Bureau of Science.

During the year 1938, five cases were appealed to this Office from the Bureau of Mines. All those cases affect questions involving disposition of mineral resources. This Office disposed of three of said cases by dismissing the appeal of the appellants.

There were likewise issued 106 orders disposing of motions for reconsideration of the decisions and orders rendered by the Secretary. Some of those motions raised not only questions of facts and evidence but also points relating to the interpretation of law and regulations issued thereunder.

During the said year 1938, this Office issued 19 formal orders of reinvestigation. This was done due to the fact that upon a careful review of the proceedings of investigation conducted by representatives of the Bureau of Lands, this Office either found that there were certain material points overlooked in the course of the investigation or that the investigation was superficial or that the inspectors conducting the investigation were charged with partiality or bribery. For these reasons, reinvestigations were ordered by this Office.

Some of the parties who lost their cases in this Office went to the courts of justice, but all our decisions were upheld either by the Court of First instance or by the Court of Appeals.

LEGISLATION

Among the bills submitted by the Department to the Office of the President of the Philippines for consideration during the last session of the First National

Assembly, the following were enacted into law as indicated:

| Bill No. | Subject | Date of enactment | Serial number and Act No. |
|----------|---|----------------------|------------------------------|
| 1287 | An Act penalizing the sale of imported eggs of which the shells are not plainly marked "Imported" as provided in Act No. 407 and for other purposes | June 3, 1938 | 274 |
| 3478 | An Act creating an Animal Utilization Service in the Bureau of Animal Industry and appropriating funds for its establishment, equipment, maintenance and operation, and for other purposes | June 21, 1938 | 340 |
| 3617 | An Act to provide for the reforestation and afforestation of watersheds, denuded areas and cogen or open land within forest reserves, communita forests, national parks, and timberlands, wood lots, and other public forest lands in the Philippines | June 1, 1938 | 304 |
| 3756 | An Act punishing the transfer of private agricultural land to unqualified persons in violation of the Constitution of the Philippines | June 9, 1938 | 310 |
| 3839 | An Act to amend section 2 of Commonwealth Act No. 32 entitling "An Act providing for the subdivision and sale of all the portions of the far lands estates remaining unoccupied (f)" | June 9, 1938 | 310 |
| 3878 | An Act appropriating P.L. 1,000 for the survey, survey and subdivision of public agricultural lands | August 14, 1938 | 347 |

It will be observed that the foregoing acts deal with the economic development and conservation of our natural resources.

Other bills pertaining to this Department submitted by the Office of the President to the National Assembly are still pending consideration by the committees concerned.

ORGANIZATION AND CHANGES IN PERSONNEL.

As presently organized, the Department of Agriculture and Commerce is composed of the following bureaus and offices:

Office of the Secretary
Division of Statistics
Division of Publications
Bureau of Plant Industry
Bureau of Animal Industry
Bureau of Forestry
Bureau of Lands
Bureau of Science
Bureau of Commerce
Bureau of Mines
Weather Bureau
Fiber Inspection Service
Veterinary Examining Board
Board of Examiners for Surveyors

The undersigned assumed office as Secretary of Agriculture and Commerce vice the Hon. Eulogio Rodriguez on November 26, 1938.

Secretary Rodriguez left the Philippines on March 22, 1938 for a tour of America and Europe and returned on August 8, 1938. While he was away Under Secretary Jose S. Camus took charge of the Department until June 22, 1938, when Secretary Mariano Jesus Cuenco of Public Works and Communications was designated Acting Secretary of Agriculture and Commerce.

The Director of the Bureau of Science, Mr Angel S. Arguelles, went abroad to attend the First International Congress on Chemical Fertilizers held in Rome, Italy, and visit different scientific institutions in Europe and the United States. Dr. Eduardo Quisumbing was designated Acting Director of the Bureau of

Science during the absence of Director Arguelles which lasted from August 29, 1938 until January 5, 1939.

During the absence of Director Quirino A. Abdilla on other business abroad from July 15 to August 31, 1938, Mr. Demetrio Andrade was designated Acting Director of the Bureau of Mines.

Mr. Vicente C. Ramos was appointed Technical Adviser in the Office of the Secretary of Agriculture and Commerce on October 1, 1938.

Mr. Eduardo R. Alvarado was appointed Chief of the Division of Publications of this Department on November 16, 1938.

Mr. Rupert T. Martinez was appointed Chief Attorney in the Office of the Secretary of Agriculture and Commerce on January 1, 1939.

Mr. Cornelio V. Cruelio was appointed Technical Assistant in the Office of the Secretary of Agriculture and Commerce on March 3, 1938.

There have been other changes in personnel in the lower positions which are not enumerated herein.

Several important committees were created during the year of which may be mentioned the committee to re-appraise the lands and improvements at the Port Area, Manila covered by the subsisting leases under the provisions of Act No. 1651, as amended, and of Chapter IX of Commonwealth Act No. 111, the committee to fix accurate appraisal of the actual price of homesites in the Hacienda Concepcion in Malabon, Hacienda Baclayon in Paracouan, and the Mariquina Estate in Mariguina, Rizal, the Advisory Committee for Tanguilan Hot Spring National Park; the committee to study the problems of the abaca industry and its market and recommend measures for their improvement, and the committee to appraise forest lands and improvements thereon and to fix for pasture and sawmill sites purposes and under lease agreements.

**ACTIVITIES OF BUREAUS, SPECIAL DIVISIONS, AND BOARDS
UNDER THE DEPARTMENT**

BUREAU OF PLANT INDUSTRY

GENERAL CLIMATIC CONDITIONS AFFECTING CROPS

As in the year 1957, the weather conditions prevalent during the year 1960 is now very unfavorable to agriculture. The last eight weeks have created 100 showers in twenty days (average) in the Luzon but also in the Visayas and in several Mindanao provinces up to the middle part of August, causing considerable damage to crops already expanded on non-irrigated lowland rice in the Central, Northern, and Southern Luzon provinces and in Mindanao. During the latter part of the year, destructive typhoons passed through the Visayas, Northeastern Luzon, and Northern Mindanao provinces which are ordinarily out of the typhoon belt. The Cagayan Valley, Northern Tayabas, the Bulacan provinces, and the Visayas particularly Leyte, Samar, Cebu, Bohol, Misamis, and Davao equally suffered from severe typhoons and floods. The combined effects of these abnormal weather conditions caused heavy losses in agricultural crops, valued millions of pesos.

PLANT SANITATION ACTIVITIES

In ensuing cut searing work was done taken during the winter months the lands partitioned in the explosive areas of Custer, Texas, Monte Largo, La Loma, Operación Morelos, Oriente and Coahuila Negro. The number of cattle on hand at the beginning of the year were 1,000,000. In the course of the above year, 1,000,000 cattle were destroyed approximately 30,000 head were lost due to 1930 searing work. The total number destroyed by fire was 10,000,000 cattle. 0.1621 private pastures, 14 were damaged, other areas of 1,000,000 cattle destroyed. There were 10,000,000 head cattles of 10,170,000 head of horses and 10,000,000 head of mares. Approximately 175,000 head cattle, 100,000 head of cattle, 50,000 head of horses, 50,000 mares and 50,000 miscellaneous crops were damaged.

Spruce beetles other than spruce budworms, such as the European spruce bark beetle, the stem borer, the spruce tip borer, and others, are serious pests of coniferous forests. In addition, there are many other diseases of the spruce, such as the spruce budworm, spruce gall aphid, and various diseases of the roots and other parts of the tree. These diseases are particularly serious in spruce woods during the winter months.

A total of 1,157,993 inspected parcels of plants and plant materials entering the country showed 40 cases of interceptions of insects on plants and plant materials and 143 of plant diseases. A total of 117,648 parcels were inspected and exported to 48 different countries. As usual internal quarantine work was done all over the Islands, especially in the control of plant diseases in Davao and Cotabato.

PLANT INVESTIGATION ACTIVITIES

1. *Agronomy*. Various investigations were undertaken on rice, peanuts, sugar cane, cassava, and other root crops. The most outstanding results obtained are the following: possibility of growing palay that usually cultivated in the Mountain Province at low altitudes and vice versa; isolation of desirable strains of palay; determination of nitrogenous and phosphatic fertilizer requirements of rice soil; successful introduction of rice from China and adaptability of standard rice varieties to Mindanao and other regions; resistance to drought of some corn varieties, like La Union No. 2, Davao No. 1, and Lanao No. 1; Caampana Yellow and Guam White for wet season planting and American Mestizo and Iagan White for dry season planting. Best variety of peanut for sandy soils; complete fertilizer requirement for cassava containing 46 kgcs each of available nitrogen, phosphoric acid, and potash per hectare; close spacing of arrowroot at a distance of 0.75 - 0.50 meter; and fertilizing lugui with 250 kilograms of nitrophoska per hectare. Chinese water chestnut, *Eichornia crassipes* Schleter, was successfully cultured for the first time in the Islands at the Central Experiment Station.

2. *Horticulture*. Investigations were likewise undertaken in fruits and nuts, such as mango, avocado, lanzones, citrus, piñ, coffee, and other avocados are beans, like asparagus, cauliflower, soybeans, broad beans, orange, alibang, tomato, cowpea, mongo, eggplant etc., coconut and other oil plants, and berries and other medicinal plants.

A few of the outstanding accomplishments in this direction are the following: differentiation on mango twigs before and after spraying; avacado seedlings grown from raw seeds were found to produce generally taller and larger trunks than those grown from ripe seeds. A general description of avocados grown in the Philippines was recorded; peanuts grown in the Bisol region were surveyed and thin-shelled ones districts were located; some 100 species of trees in ten states have those grown in Clark, Iloilo, Laguna, Pampanga, Bulacan and Masbate

Province were discovered; Mis 28 E. B Str 3910, Mis 33 D.XI, Head Green and American Black varieties of soybeans were found to be promising for dry season culture, and the varieties of cabbage, Bikhizer, Grey, Charlest n, Waukefield, Autumn King, and Early Stoneyland were found to be good yielders.

3. *Tobacco research*.—An intensive campaign for the production of wrapper leaf tobacco, cigar filler leaf tobacco, aromatic cigarette leaf tobacco, and batik leaf tobacco in the tobacco regions of the Islands, especially in the Cagayan Valley, Tubao Valley, Batangas Hocor region, including Patijasan and Nueva Ecija, and other tobacco regions in the Visayas and Mindanao was conducted during the year. There were distributed 16,649 grams of tobacco seeds of which 14,663 grams were of the cigar filler type, 6,955 of wrapper type (Sapanta), and 18,615 of aromatic cigarette type.

4. *Fiber research*.—Researches were undertaken on abaca, cotton suiting cloth, ramie cloth, spinning of fiber plants, and construction of mechanical devices, all with gratifying results. About 80,860 meters of abaca burlap valued at ₱3,848 were received from the Bicol provinces. The products manufactured and sold consisted of abaca linen, cotton cloth for suiting, bed covers, jusi, towels, etc., valued at ₱739.73 and abaca burlap valued at ₱4,873.79.

An abaca experiment station was established on January 3, 1938 in Barrio Barao, Guiooataar, Albay. This is now known as the Guiooataar Abaca Experiment Station. The station site covers three parcels of land with a total area of 840,663 square meters valued at ₱14,419.39. Fifteen hectares are now planted extensively to citrus nursery, and miscellaneous plants for propagation purposes, and miscellaneous fruit trees.

5. *Plant utilization*.—As a result of researches undertaken during the year about 447 different recipes were formulated for different products, like turnip cassava latada, mungo, peanuts, mushroom, corn, coconut, papaya etc., a good grade of dextoria was prepared from cassava starch and syrup similar to "gar" was made using sugar cane juice and glucose. About 1,190 analyses of different plants and plant products were performed and 600 tests of fiber were made. 472 of propylene 513 of diacet 30 of latex, 210 of apel, 81 of palm oil and 35 of roselle, prepared.

Rural improvement clubs among women in the provinces were organized with a view of improving living conditions in the rural districts. Student home demonstration from different

provinces were taught meal planning, table service, health-service management and improvement, principles of cooking, financial and money management, reservation, food preparation, canning, and home industries work.

6. *Surface irrigation.* Improvements in the designs of the Maurya, one-layer types and 15-cm. animal and timber stone structures were made. An earth fill dam was constructed at the Bagri Pari Forestry Experiment Station and a hydraulic ram, pipes, valves, etc., installed in Navaholes, Canada, R.Z.C. A model station for lasosy was designed and constructed.

The insecticide factory produced a total of 7968 kilos of dairy products as follows: milk powder 1717 kilos, coarse powder 1652 kilos; and flour 179 kilos. The oil mill turned out 280 liters of coconut oil, 120 liters of castor oil, and 15 liters of Afram palm oil. The cotton gin produced 9,062 kilos of fibers and 17,268 kilos of seeds, all of 116 bales of cotton bolls.

8. Parasitic.—Investigations of the lymph nodes, particularly those of the mesenteric, colic, celiac, and splenic, glands, and deep inguinal, axillary, and tracheobronchial lymph nodes, and also of the mucous membranes of the rectum, conjunctiva, and respiratory tract, were carried from investigation on the control to recovery periods in 1920, 1921, and 1922. The results of these examinations, after three decades of time, provided a number of interesting and cases of unique interest. These will be discussed in the following sections: (a) *Protozoal*; (b) *Filarial*; (c) *Leishmaniasis*; (d) *Trichomoniasis*; (e) *Leptospiral*; (f) *Parasitic*; and *industrial organisms*.

Statistics of the estimated Philippine public works with a view to improving their methods of preparing plans and reducing the production costs now exist for those states which have been obtained.

The *Urticaria* was typical of the condition in leg ulcers, vesicles, and trichiasis. Ulcers were obtained

during the year. Of the *anggit* rice-sowland rice the crosses Raminan Straits Nos. 3 and 4 and Kan-hi Straits Nos. 1 and 2 are now grown in a commercial scale in Malacca (Neiva Estate) and other neighboring. There are also under study 31 different strains of *gigantes* lowland rice. The rice variety Long Glutinous Japanese is raised from sprouts headed in 7 days after transplanting and the two types Nos. 4 and 5) once introduced from Formosa is sown pasture as they attain a satisfactory height with good-sized panicles.

Thirty-five different varieties and strains of upland rice which had been selected were planted for stem propagation preparatory to conducting the comparative yield tests. There were also planted 11 non-glutinous and 4 glutinous varieties for further selection.

The ploughing demonstration beds prepared at the new area station in Bontoc, are at Bontoc, Lansigan, Pit, Maguindanao, Pit Timbagan, Maguindanao, and Pit Lansigan.

LOS BAÑOS ECONOMIC GARDEN

There were received at the Garden 65 species of 110 varieties of native plants; 47 species and 104 species and 114 varieties of exotic plants. Examining, pricing, the systematic garden, and recording the specimens, and maintaining the living date of "new" plants. The work of the entomologist consists of catching, growing, rearing, and preparing bees, beetles, ants, wasps, and other insects, and their study through the microscope and the field. The work of the horticulturist consists of direct supervision of the soil, seed, and culture of plants, and the care of the plants after they have been in the Garden. It is the duty of the entomologist to make his work available.

PLANT PROPAGATION ACTIVITIES

The program for adult education—seminars and short courses—was also concentrated in the rural training institutions which carried on the work of adult education. The State Department of General Education, State Model Adult Training Program, State Adult Education Project, Part-time Education, State of San Joaquin, San Joaquin Project, Experiment State, Big Bend, Texas, Reconstruction Station, Mineo, New York, Long Island, Hart Island Experiment Station, Luray, Virginia, The Battleground, Carter Lake, Iowa.

ños, Laguna; Tanauan Citrus Experiment Station, Tanauan, Batangas, Lipa Coffee Citrus Station, Lipa, Batangas; Halcon Rubber Reservation, Baco, Mindoro, La Paz Plant Propagation Station, Lilo Cty., Gandara Seed Farm, Gandara, Samar, Granja Sugar Cane Experiment Station, La Carlota, Occidental Negros, Mandana Seed Farm, Mandana, Cebu, Maridagao Rubber Experiment Station, Pakit, Cotabato, Davao Seed Farm, Davao Penal Colony, Gingoog Lanzon Reservation, Gingoog, Oriental Misamis, and Guinobatan Abaca Experiment Station, Guinobatan, Albay.

AGRICULTURAL EXTENSION ACTIVITIES

Special drives were conducted to encourage the cooperative trial planting of such crops as onions, cotton, and derris. About 2,100 kilos of Yellow Bermuda and 250 kilos of Red Globe onion seeds were distributed to 1,048 cooperators in 35 provinces and 3,316 kilos of cotton seeds to 621 planters in 13 provinces. To give impetus to the silk industry, 11,295 mulberry cuttings were distributed, especially in Cavite, Sorsogon, and Oriental Negros, while 34,000 root stocks of ramie were distributed in Davao alone.

A systematic food production campaign was also launched, particularly in the typhoon, flood, and drought-stricken provinces by urging the farmers to plant root crops, vegetables, and paingad or dry season lowland rice to dissipate the imminence of famine due to decreased production of rice and corn. There were distributed to farmers 90,274 cassava cuttings, 11,200 kilos of beans, 1,636 kgs. and 1,3752 packets of vegetable seeds, most of which were soybeans, roundfat beans, Chinese beans, sitao or *Sesbania* beans, pe hay, mustard, radish, cabbage, tomatoes, and eggplant, 541 cavans of palagad seed paray; 47,970 letter seedlings, and graded grafted and marcotted plants. Around 186,375 fruit trees were planted, 186,595 pruned, 27,125 braded, 11,264 grafted, and 36,780 treated for pests and diseases. Under the supervision of the full personnel of the Bureau of Plant Industry. There are now in operation 16 provincial nurseries and 16 municipal nurseries scattered in 39 provinces. Twenty educational provincial and six provincial nurseries, and the frontier educational and private nurseries are in the process of establishment. Cooperation was extended to the following institutions: to the Philippine Army and the Office of Adult Education.

BUREAU OF ANIMAL INDUSTRY

EXPANSION OF THE SERVICE

During the year 1938, the activities of the Bureau of Animal Industry considerably increased. A new division known as the Livestock Extension Division was organized in the early part of the year. This new unit was created with a view to bringing the Bureau closer to the people.

A unit known as the Inedible Animal By-products Section was also organized.

As a result of the operation of Commonwealth Act No. 118, creating the Livestock Promotion Fund, three new breeding stations were established in Sta. Cruz, Laguna; Sariaya, Tayabas, and Bangue, Abra. Several others are now in the process of establishment in different regions of the Philippines.

On June 21, 1938, Commonwealth Act No. 340, creating the Animal Utilization Service under the Bureau of Animal Industry, was approved. This service will be inaugurated as soon as funds appropriated under the law are released.

Commonwealth Act No. 379, approved on August 23, 1938, confers upon the Bureau the duties of branding and registration of large cattle imported into the Philippines from foreign countries.

ERADICATION AND CONTROL OF ANIMAL DISEASES

The quarantine and mass vaccination of animals proved to be very effective in the eradication and control of animal diseases. The diseases which broke out but were subsequently placed under control during the year were the following: rinderpest, anthrax, hemorrhagic septicemia, foot-and-mouth, tuberculosis, surra, glanders, hog cholera, avian pest, fowl cholera, cow pox, roup, and coccidiosis in hocks, and other minor diseases, such as cases of rabies, contagious abortion, piroplasmosis, joint lameness, epizootic lymphangitis, strangles, tetanus, suspected cattle farcy, foot-myiasis, and liverflukes.

MEAT INSPECTION

The meat inspection service provided for under Commonwealth Act No. 82 was carried out in 286 municipalities, including chartered cities. Due to its limited force, the Bureau of Animal Industry found difficulty in the supervision of meat inspectors. As a whole, however, meat inspection has been satisfactorily conducted throughout the Archipelago. The municip-

Companies concerned have been advised to establish more or larger principal slaughterhouses or remove existing ones and provide them with better facilities, for which purpose it has been suggested that they apply for loan from the rearing grant of the P.C.C.D. appropriated under Commonwealth Act No. 1053. This is to protect a situation suitable for cities and municipalities as well as prepared and distributed by the Bureau of Animal Industry.

VETERINARY RESEARCH WORK

The following are the outstanding accomplishments of the Bureau during veterinary research:

- (a) Positive determination of the viability of the virus of avian pest in dead birds. The virus can remain viable and infectious as long as eight days in the carcass of a bird infected with avian pest;
- (b) Preparation of crystal violet naphthol sarnamine which is already giving very encouraging results in the first trials in the provinces;
- (c) The positive demonstration that greater immunity is established first, by giving a certain amount of rabies vaccine in multiple injections than by giving the same amount in one injection and second, by giving a bigger dose of rabies vaccine in multiple injections;
- (d) Positive confirmation of the presence of cut-gut disease among the dairy cattle in two cases one in Manila and the other in Cebu;
- (e) Positive determination that calves are infected with salmonella typhimurium to the extent of ten per cent during the last period of time, with which were correlated the first few months;
- (f) Preparation of a elient that will keep live salmon toads for 14 days which heretofore could not keep alive for 18 hours only. This is now made possible through the utilization of the so-called aseptic salt bath. It may be seen in the illustration in this report, the evidence;
- (g) Mixed naphthalene and sulphur powder of the ordinary type of anthrax spore vaccine;
- (h) The preparation of the vaccine that can last for 10 to 12 months at room temperature without refrigeration. It is prepared as follows: the doseable amount mixed with 20 ml. of anhydrous paraffin oil and 11.8 ml. water when it is used injected via intradermally 2 to 6 days.

(c) Considerable increase in the production of many of the biological products manufactured by the Bureau, and

(d) Organization of a Bureau section which handles the problem related to bugs. The importation of insects and other solutions, and the removal, analysis of specimens for poison for oil vaccine, sera, etc., and analysis of insecticidal emulsions, charges and standardization of insecticides.

Investigations and research may be concentrated on various diseases, bacterial diseases, parasitic diseases, various agricultural projects and others. Progress report which are still in progress.

LABORATORY DIAGNOSIS

During the previous year a laboratory diagnosis service both for the Government and private parties for the determination and differentiation of various causes of disease was maintained. A total of 1,720 specimens submitted for diagnosis included the specimens coming from experimental animals belonging to the Government. Examinations for poisoning and identification of meat and other materials were conducted and a total of 70 samples was diagnosed.

PRODUCTION OF STANDARD BIOLOGICAL PRODUCTS

The Bureau manufactured the following biological products during the year 1938:

| | Quantity | Value |
|--------------------------|-------------|-------------------|
| Rabbit serum | 1,680 | P7,800.00 |
| Lymphogranuloma venereum | 0 | 0.00 |
| Rabies vaccine | do... 7,975 | 1,883.75 |
| Lepto | 1,720 | 2,700.00 |
| Cattle plague | 1 | 1.00 |
| Horse plague | 1 | 8.00 |
| Avian cholera | 4 | 16.00 |
| Brucellosis | 1 | 1.00 |
| Sow fever vaccine | 1 | 8.00 |
| American plague | do... 1,600 | 2,400.00 |
| Anterior rinderpest | do... 1,600 | 2,400.00 |
| Tetanus | 1 | 1.00 |
| Malaria | 1.85 | 2.00 |
| Typhoid | do... 0.00 | 0.00 |
| Acne | do... 0.00 | 0.00 |
| Total | | P31,744.65 |

LIVESTOCK IMPROVEMENT WORK

The work on the upgrading of the native stock was continued, special emphasis having been laid on the development of dairy beef and work animals. The different livestock projects of the Bureau were expanded and the production of more and better kinds of stock was increased to meet the growing demand for breeding animals. The experiments on breeding with a view to developing strains of breeds that can be raised profitably in the Philippines were also continued and the results obtained are very encouraging.

STOCK FARMS AND BREEDING STATIONS

The Bureau continued the operation of the following stock farms, through which it carried its livestock improvement work:

Alabang Stock Farm, Alabang, Rizal.

Balgas Stock Farm, Balgas, Nueva Ecija.

Dumaraao Stock Farm, Dumaraao, Capiz.

In-Carreta Stock Farm, In-Carreta, Occidental Negros.

Ubay Stock Farm, Ubay, Bohol.

Animals for breeding purposes are kept in the breeding stations. In addition to the breeding stations in operation during 1937, three new ones were opened during 1938. The following are the present breeding stations of the Bureau.

Batangas Breeding Station, Batangas, Batangas.

Cebu Breeding Station, Cebu, Cebu.

Iloilo Breeding Station, Bayan, Zamboanga.

Laguna Breeding Station, Sta. Cruz, Laguna.

Tayabas Breeding Station, San Juan, Tayabas.

Abra Breeding Station, Bangued, Abra.

IMPORTATION OF BREEDING ANIMALS

In order to produce better results in the breeding work, more animals were imported into the Philippines for breeding purposes. The importation during the year consisted of 12 Afrikaner bulls, 7 Afrikaner cows, 2 Sussex bulls, 1 British Suffolk buck, 3 British Suffolk does, 1 British Ayrshire bull, and 12 Mangalica (Merino) sheep from South Africa, 2 Ayrshire rams, 5 Ayrshire ewes, 7 White Leghorn roosters, and 70 White Leghorn hens from Australia, and 2 Argentian steers, 12 Argentian cows, 2 Long Island bulls, 12 Long Island does, 2 Hampshire rams, 12 Hampshire ewes, 2 Black Faced China boars, 15 Black Faced China ewes, 1 Black Berkshire boar, 5 Black Berkshire sows, 1 Spotted Peacock ram, and 1 Spotted Peacock-Clara sow from the United States.

For the first time, Afrikander cattle were introduced into this country in 1938. This breed of cattle is very hardy and thrives well under varying conditions in South Africa, which are similar to those of the Philippines. In view of the large size and hardness of the animal, it is believed that this breed can well be used in this country for the improvement of native beef cattle.

LIVESTOCK PROJECTS

1. *Horses.* Experiments on the improvement of the native pony by the use of Arab stallions were continued. Free breeding service was extended in four of the breeding stations. The total stud fees collected in 1938 amounted to P8,265 which exceeded the total sum collected in 1937 by P2,060. The stations rendered approximately 4,719 services, and as far as could be ascertained 122 foals were begotten out of natural breeding and 43 of artificial insemination.

2. *Cattle.* Native stock for beef purposes will be greatly improved with the importation at the middle of the year of seven Afrikander cattle and a Sussex bull. This newly imported stock showed certain degrees of adaptability under local conditions. The cross between the Ayrshire cattle and the Nellore or the Nellore-native grades for the development of dairy type produced animals which yielded as high as 18 to 21 liters of milk daily.

3. *Carabaos.*—A dairy herd of native carabaos was started in the Alabang Stock Farm. The experiment has so far shown that, under favorable conditions a carabao may produce as high as four liters of milk daily.

4. *Pigs.* The increased demand for breeding pigs in 1938 doubled that of the preceding year and although the capacity of the hog pens of the Bureau was enlarged and the production increased, the farm was unable to meet the demand. The experiments on the Poland-China-Batangas cross have produced fast-growing animals suitable for commercial purposes.

5. *Sheep and goat.* With the importation of Mangalica (Merino) from South Africa and Shropshire sheep from the United States, the sheep project of the Bureau was enlarged during the year. A few sires of Angora Nubian, Toggenburg and British Saanen, and Alpine goats has reinforced the goat herd of the Bureau.

6. *Poultry.*—The poultry projects in the Alabang Stock Farm and Cebu Breeding Station have been the main centers of breeding fowls all over the Philippines. From the 1,200 laying hens

at the Alabang Stock Farm, a production of 775 eggs a day can be obtained which shows the superiority and quality of the chicks hatched on the farm. This production is a result of the systematic and judicious work of the flock.

PASTURE GRASSES AND FORAGE CROPS

Locally grown feed is converted from homegrown materials like corn produced from the pastures to be imported in foreign countries to feed imported animals. The results so far has proved very satisfactory.

The occurrence of heavy rainfall, soil salinity and the heavy infestation of noxious insects has started in the different farms of the Bureau. A suitable area was allotted to bring grass and forage crops besides Napier Grass, Ucayali, and other common pastures. Pasture improvement in the farms was effected.

EXPERIMENTS ON THE PREPARATION OF ANIMAL PRODUCTS

To carry out the program of work directed towards industrial utilization of animal by-products, there was organized in the Animal Projects Division of the Bureau a unit known as Livestock Animal Products Section. Experiments on the preservation, curing and lactation of milk and meat products were conducted and satisfactory results were obtained. The production of semicommercial scale of meat and milk products such as ham, bacon, sausages, butter, cheese, etc., continued the manner that the regular work performed along this direction. The resulting finished products were sold or disposed of to the public. During the year under review the total gross income realized from the sales of various finished meat and milk products amounted to ₱28,546.10.

The execution of the various projects was made possible by the operation of a revolving fund of ₱15,000 set aside from the sum appropriated under Act No. 1073 known as the Premium on the Development of New Industries Fund.

LIVESTOCK EXTENSION SERVICE

As stated elsewhere in this report, the Livestock Extension Division is a new unit. It was originally organized at the beginning of December last year and was later incorporated in the Bureau. This Bureau is primarily designed to augment the people with them in their activities of the Bureau of Ani-

mal Industry, to place at their disposal the results of its investigation, researches, and accomplishments to disseminate useful information on the ways and means of controlling and eradicating animal diseases, on the proper feeds and feeding, care and management, breeds and breeding of animals, and to familiarize them with the importance of propagating different forage crops and of conserving and improving native pastures. To systematize the work, the country was divided into 14 livestock extension districts, each comprising two or more provinces under the charge of an extension officer. A detailed survey of the conditions obtaining in each province is being made and suitable regions for animal production are selected to serve as promotional centers. House-to-house visits were made by the extension men to encourage and help the people to raise and produce more and better kinds of animals, particularly swine and poultry, through proper methods of feeding, care, and management.

During the year extension service was rendered to three hundred forty-eight commercial and semi-commercial, and six hundred ninety-one backyard chicken projects in thirty-seven provinces.

Through the Livestock Extension Service, the Bureau was able to participate in the 1938 Livestock Show in the National Agricultural and Industrial Exposition at the 11 provincial agricultural expositors and fairs held in different provinces.

This unit also took charge of the distribution of the different scientific publications. About 25,000 bulletins, leaflets, and administrative orders, annual reports, circulars, and model service records were distributed during the year.

LIVESTOCK PROMOTION WORK IN MINDANAO AND SULU

In accordance with the policy enunciated by His Excellency the President of the Philippines for the economic development of Mindanao and Sulu, the Bureau of Agriculture established during 1938 a division office in said region under the charge of a director who is in full charge of the promotion and development of the livestock industry in Mindanao and Sulu. The division office is located in Zamboanga City, Sulu, and it is expected that it will be a nucleus for the promotion of agriculture in the entire region. It is the office of the Bureau of Agriculture and Commerce in the province of Zamboanga and Sulu which is in charge of the promotion of agriculture in Mindanao and Sulu. It is a model for the推广 of agriculture in Mindanao and Sulu.

BUREAU OF FORESTRY

GENERAL SURVEY

There was a slight decrease in the total quantity of timber cut compared with that of last year, and a decline in the lumber and timber export primarily due to the limitation in their importation as a result of the Sino-Japanese conflict.

The capital invested by Filipinos in the lumber industry and the number of sawmills established have increased.

There were more licenses issued this year for the cutting and collection of timber and other forest products. There was an increase in the number of permits issued for the use of forest lands, a corresponding increase in the total area granted under such permits and the rentals collected therefrom.

Land classification was undertaken as usual. The establishment of more national parks and forest reserves has been pushed through.

Forest research was carried out to meet the exigencies of the service, although to a limited extent only because of handicaps in funds and personnel.

The reforestation work of the Bureau has been extensively and intensively carried out making possible the employment of more than 15,000 laborers. The number of reforestation projects has been increased from 17 to 29 and there are now reported growing 73,593,000 trees over an area of 6,938 hectares.

LUMBER INDUSTRY

From January 1 to October 31, 1938, the quantity of timber cut from the public forest by licensees aggregated 2,035,659.74 cubic meters as compared with 2,500,055.12 cubic meters cut during the whole year 1937.

There were 141 sawmills and seven machine-logging operations without sawmills with a total timber production of 291,946,292 board feet (as of October 31, 1938) as compared with 121 sawmills and one machine-logging operation with a production of 315,841,452 board feet during the whole year 1937.

Investment.—The majority of sawmills and machine-logging operations without sawmills are owned by Filipinos, but the Americans had the biggest investment in the lumber industry. However, Filipino capital has increased its participation in the lumber industry. The percentage of purely Filipino capital constitutes at 1 per cent of the total investment as compared with 25.6 per cent in the previous year. The capital

investment by nationalities is as follows: Americans, 40.9 per cent; Filipinos 30.1 per cent; Chinese, 10.2 per cent; British, 4.9 per cent; Japanese, 4.1 per cent; American-Filipino, 1.2 per cent, American-Filipino-German, 0.4 per cent; and Filipino associations with foreigners, 7.2 per cent.

2. *Foreign markets.*—There was a general decline in lumber and timber trade with foreign countries, especially with Japan and China. The total export during the period from January 1 to November 30, 1938, was 141,380,680 board feet as compared with the export of 251,694,880 board feet during the whole year 1937. The decrease was due to the curtailment of exports to Japan by the Japanese Government because of the Sino-Japanese conflict and the consequent decline in the Chinese market and to some extent to the increased freight rates of lumber and timber to Continental Europe and the United States and the threat of a European War.

3. *Local markets.*—The domestic market was active although prices remained at low level. This was a direct reflection of the active residential construction and large-scale construction program of the Government. Considerable quantity of logs formerly intended for export to Japan and China was sawn and sold locally, the low prices notwithstanding.

SCALING

The total amount of timber sealed by forest officers as of October 31, 1938, was 1,124,913.93 cubic meters with corresponding forest charges of ₱1,748,729.21 as compared with 2,161,352.99 cubic meters with forest charges of ₱2,116,748.82 for the whole year 1937. Of the 148 licensed sawmills and machine-logging operations, 111 were provided with regular sealers, 18 were visited only periodically by forest officers and the rest manifested their own timber.

The sealing work in Manila was more active than last year. The total quantity of timber sealed as of November 30, 1938, was 22,666.66 cubic meters with corresponding forest charges of ₱50,030.59 as against 21,523.63 cubic meters with forest charges of ₱45,615.2 for the whole year 1937.

GRADING AND LUMBER INSPECTION

There were 2,769,063 board feet of lumber and timber inspected with corresponding inspection fee of ₱1,824.20. These figures cover the period from January 1 to November 30, 1938.

UTILIZATION OF FOREST PRODUCTS

1 *Ordinary and gratuitous licenses in force.*—There were 8,666 forestry licenses in force during the year, including ordinary timber licenses, ordinary minor forest products licenses, private gratuitous licenses, public gratuitous licenses, miners' gratuitous licenses, ordinary wild plants dealers' licenses, gratuitous wild plants licenses, special wild plants permits for educational or scientific purposes, collectors' wild plants licenses, and permits to transport wild plants for personal uses.

2 *License agreements.*—Three timber license agreements for a period of ten years each were granted during the year. There were in force 18 license agreements for timber and two minor forest products license agreements.

3 *Forest products cut, collected, and invoiced.*—During the period from January 1 to November 30, 1938, there were 2,043,494.56 cubic meters of timber cut, collected, and invoiced from the public forest. Of this quantity 2,005,659.74 cubic meters of timber are for commercial and industrial purposes, 17,359.42 for mining; 8,127.76 for public works, and 12,347.64 for domestic purposes.

The minor forest products invoiced from January 1 to October 31, 1938 were 146,193.06 cubic meters of firewood, 8,871.43 cubic meters of charcoal, 1,212.702 kilos of taubarks, 6,847,919 kilos of cutch, 648,041 kilos of Manila cord, 8,992 kilos of Manila elemi, 12,308.765 of cassions, 883,488 kilos of split rattan, 3,574,853.11 at meters of a split rattan, 1,204 kilos of galma, 22,286 kilos of Kunagsa, 1,161,653 kilos of rupa leaves, 37,522 kilos of lemongrass, 81,096 kilos of ambang nuts and others.

4 *Fees for charges.*—The total forest charges collected amounted to P2,482,835.14. The charges for the use of the national parks in the amount of P7,198.31. For charges per kg. collected amounted to P1,159,557.55. Of this amount P1,100.57 represents forest charge for illegal forest products submitted for collection.

5 *License deposits.*—The total amount of both deposits for the first five of the Government was P1,011.85 while P10,455.00 has been received. A total of P2,275.85 collected on the payment of a license. The amount of P1,622.92 was paid to the Auditor General to the credit of the contractors licensed miners. A sum of P997.578.24 was collected on the liquidation of the license bond deposits in 1920.

LAND CLASSIFICATION

There were received 312 requests for land classification of which 86 were acted upon. There were 128 land classification projects handled of which 53 were certified, seven cancelled, and one combined with other projects, leaving 67 projects pending action.

The 53 projects certified covered an aggregate area of 73,248.4077 hectares out of which only 11,870.1 hectares in 11 projects were declared agricultural lands and 61,378.5077 hectares for the remaining 42 projects were certified for subdivision by the Bureau of Lands.

FOREST VIOLATIONS

There were detected as of November 30, 1938, 1,636 cases of forest violations committed by licensees and 10,781 cases of forest violations committed by non-licensees involving the amount of ₱87,121.31 and ₱171,988.51, respectively, or a total of ₱262,117.82.

Ilegal cuttings - The Bureau detected 1,766 cases of illegal cuttings covering a total area of 2,029.68 hectares. The trees products destroyed totaled 128,234.36 cubic meters of timber, 7,052.06 cubic meters of firewood, 944,000 pieces of bales; and 22,952 seedlings of Pines and Dipterocarpus species, the total forest charges of which were ₱194,680.51.

SPECIAL USE PERMITS

The number of applications for special use of forest lands received during 1938 was 2,948. These together with the 3,92 applications at the beginning of the year made a total of 6,660 applications handled during the year. Of this number, 2,877 applications have been acted upon. The number of special use permits in force in 1938 was 3,116 with a total area of 97,171.06 hectares. In addition to the above, 1,021 applications for permits to mine coal have been handled.

Revenue - The income derived from annual land taxes from the mining of coal was ₱71,322.21. There was collected also the sum of ₱16,212.46 as hotel tax.

FOREST LAND REGISTRATION CASES

There were registered 730 cases of land registration involving 17,380.00 of land having an aggregate area of 15,561.16 hectares. Applications were filed only against 59 cases involving 257 parcels with a total area of 9,257.6149 ha.

tares. After field investigation, 242 parcels with an area of 9,141.7108 hectares were withdrawn because they were of no forestry value. Three parcels involving 496.27 hectares were adjudicated to the claimants and six parcels with an area of 35.8531 hectares were declared public lands. There are pending hearing cases involving 378 parcels covering 55,054.611 hectares.

In cadastral hearings there were received 89 cases involving 22,628 lots covering 112,152.6178 hectares. The Bureau of Forestry filed claims to 4,671 lots involving 70,840.1614 hectares. No claims were filed on 1,287 lots covering 15,883.1243 hectares because they contain no forestry value. At the end of the year the total number pending hearing is 69,309 lots with an area of 566,008.874 hectares.

PRIVATE WOODLAND REGISTRATION

There were 290 certificates of registration checked. One hundred forty-seven applications for registration of titles under section 1829 of the Administrative Code were received. These, together with the 59 applications pending at the beginning of the year, made a total of 197 applications handled. Of these, 141 were finally acted upon leaving 56 pending action at the end of the year. Of the 141 applications acted upon, 129 were issued certificates of registration covering 140 parcels of land with an aggregate area of 5,651.71 hectares of highland forest, 437.9 hectares of firewood land, 192.18 hectares of mangrove swamp and 6,387.63 hectares of nonforest lands, or a total of 12,669.42 hectares. Twelve applications were disapproved and 22 provisional certificates covering 28 parcels of land with an area of 5,400.85 hectares were issued. There was collected ₱710 as fees for private woodland registration.

FOREST CLAIMS AND CONFLICTS

Three hundred twenty-eight cases of claims of forest land, 242 of which were formerly opposed, were received. These, together with the 208 claims pending at the beginning of the year, made a total of 536 claims handled. There were 459 claims finally acted upon, leaving 77 cases pending action at the end of the year.

FOREST RESERVES

Eleven forest reserves, with an area of 168,677.55 hectares, were established. There are at present 80 forest reserves with a total area of 1,073,713.56 hectares.

Timberland—There were established 24 timberland blocks with an aggregate area of 28,532 hectares. Sixty-two blocks with a total area of 4,119.925 hectares were reverted from alienable and disposable to the category of forest lands. There were, therefore, 86 blocks with an aggregate area of 32,651.925 hectares established.

NATIONAL PARKS

Six national parks, containing a total area of 23,270.3488 hectares were proclaimed, making a total of 25 established national parks with an aggregate area of 167,553.3857 hectares.

The total income from the parks amounted to ₱15,569.31 while the total expenses incurred for improvements was ₱10,033.28.

COMMUNAL FORESTS

There were established 41 parcels of communal forests, 28 parcels amended, 15, canceled, 4, closed to cutting, 90, inspected, and 1, opened to commercial exploitation. At the end of the year, 1,339 parcels containing an area of 267,197.73 hectares were in force. Of the 311 cases pending action, 196 were pending establishment; 98, pending amendment and 17, pending cancellation. A total of 53,645.70 cubic meters of timber, 21,800 pieces of bonos, 47,180 pieces of tangal and bacauan, and 1,540 bundles of nipa shingles was cut from communal forests.

COMMUNAL PASTURES

Two parcels of communal pastures with an area of 678.20 hectares were established, making a total of 66 parcels with an aggregate area of 1,502.65 hectares, located in 38 municipalities and municipal districts.

FOREST RESEARCH

There were started 20 new projects distributed as follows: 3 on silviculture, 3 on management, 2 on protection; 7 on utilization, 1 on dendrology, and 1 on economics. These, with the 147 projects in progress at the beginning of the year give a total of 167 projects handled during the year, 13 of which were completed, 12 published, and additional data secured for the rest. Of the 13 projects completed, 2 are under silviculture, 2 under management, and 3 each under protection, dendrology, and utilization.

Of the total 36 pending projects handled by the Section of Forestry of the National Research Council of the Philippines, 2 were completed and 2 were published. A total of 33 is in progress at the end of the year.

1. *Dendrology.* - Field identification of 128 species of plants consisting of trees, shrubs, and ornamentals, belonging to 110 genera and 47 families was made in Camp Stotsenburg, Pampanga, 91 species and 2 varieties belonging to 82 genera and 38 families in Bagac in Rizal at Mandauyong, Rizal, 41 species belonging to 39 genera and 18 families in Wack-Wack and Country Club Golf Course. Ninety species belonging to 71 genera and 58 families were received from the different forest stations and identified.

2. *Forest entomology and pathology.* There were collected 356 insect specimens representing 94 species. There is now a total of 41,306 insect specimens representing 1,725 species in the present collection.

There were also collected locally and received from the fieldmen 217 specimens of tung and there is now a total collection of 413 specimens of tung of which 219 were identified species.

3. *Botanical collection.* A collection of 115 botanical specimens was made at the University of the Philippines Laiya Craft, 28 of which have corresponding wood specimens. Another collection was made at the western portion of Mount Mariveles within the jurisdiction of Bagac, Bataan.

There is in the herbarium a total of 5,028 botanical specimens consisting of 2,298 species, 1,009 genera, in 171 families.

REFORESTATION

Under the various Appropriation funds for reforestation purposes, the total amount of P571,268.20 was available during the year.

From the passage of Act No. 3283 in 1927 a total area of 2,054.496 hectares has been extensively surveyed out of the 5,213.895 hectares of virgin forest in the Philippines. A total area of 495.272.200 cu. m. was stamped, and 1150.7799 hectares evaluated, and a total of 1,238,169.8 cubic meters and 1,700,733 hectare respectively were certified.

The following areas were allocated to all reforestation projects except those set aside for the

Two new pieces of virgin forest were surveyed, one in the 17th district of Cagayan, a total of 1,000 cu. m. in process of evaluation, and the other in the 14th district of Agusan Province, a total of 1,000 cu. m. others are still being surveyed for possible inclusion in the projects in the national parks.

In all of the projects, there is now a total of 6,938 hectares of plantations, 1,640 hectares of which are newly planted to seedlings, 1,075 directly seeded, 563 fully stocked, and 660 hectares partially stocked. In all of the plantations, there is now a total of 71,567,000 trees living of which 919,700 are over a year old. The total area of nurseries in these projects is about 984,600 square meters, of which 486,600 square meters are for seed beds, 69,100 for transplanting beds, and 728,600 for other purposes.

The total amount of seeds sown was 249,830 liters of which 77,780 liters were sown in seedbeds and 55,610 directly sown in the plantations.

The total number of seedlings handled was 16,870,900 of which 4,070,166 were set out in the plantations.

FOREST SURVEYS

Surveys undertaken in accordance with the procedure of the Bureau of Forestry consisted of 6,271 offices of field notes involving 22,666.66 kilometers and 6,559 hectares of forest valuation.

MAPPING AND DRAFTING

A total of 248 new cases for compilation and preparation of maps was received which, together with the 49 cases pending at the beginning of the year, gives a total of 257 cases for action. Of this number, 245 cases embodied in 223 maps were acted upon. There were also prepared under special request 317 cases of the unclassified miscellaneous maps and 158 issued Bureau of Land Survey tracings in connection with proposed General Land Registration cases. Vegetative data from 3,109 sections, the boundaries of 32 land cities, state parks, 10 forest reserves, 2 national parks, 78 county or forest, and 1 communal pasture were compiled in 2010 sections. 18 sections of timberland and 67 sections Bureau of Land Survey maps which were surveyed and plotted in progress were issued.

Species of *Elminia* and *Elminia* number 17721 were
placed in when 1100 were strayed from the area described.
188 specimens of 17 species of 111 species were
placed in groups according to the following areas: Vellore district
and Madras districts. The numbers of species
placed in each group are given in the following table:
With 16507 individuals in the 111 species in the
group totals 65508 specimens.

EXTENSION SERVICE

During the period from January 1 to November 30, 1938, the Bureau of Forestry presented 60 formal and 1,387 informal talks, or a total of 1,687 talks to hearers numbering 181,289.

There were planted throughout the Philippines, from January 1 to November 30, 1938, 917 trees in connection with the celebration of the Bird and Arbor Day and the third anniversary of the Commonwealth, including those planted for beautification purposes and commemoration of distinguished persons.

As in previous years, the Bureau of Forestry extended its co-operation to private individuals as well as public or semi-public entities in the matter of tree planting, tree pruning, and general beautification work.

The public relations work and educational campaign of the Bureau were actively undertaken. News items on the important program of activities or projects undertaken were broadcast over the radio by the National Information Board.

COOPERATIVE PLANTING PROJECTS

1. *Tagaytay*.—The forest nursery at Tagaytay which was established in cooperation with the Bureau of Public Works for the necessary beautification and tree planting of the place has been maintained throughout the year. The nursery covers an area of about 9,298 square meters. There have been raised 17,007 seedlings of different species and 1832 ornamental plants. There were set out along the present road, rest areas, and the waterworks site, 1,156 seedlings.

2. *City of Baguio*.—The planting of trees, ornamental plants and shrubs along the drives and in the parks in the City of Baguio was continued. A total of 22,292 trees and ornamental plants was set out.

3. *Mountain Health Resort*.—The cooperative planting project and beautification work in Maribojoc, Occidental Negros, which were started by the Bureau of Forestry on May 22, 1938, in cooperation with the Provincial Government and staffed by the Bureau in the latter part of the year 1936, were again resumed in connection with the opening of the Canyon Rehabilitation Project on June 20, 1938. The Director-in-Charge of the Canyon Rehabilitation Project is being assigned to take charge also of the beautification of the Mountain Health Resort.

BUREAU OF LANDS

ADMINISTRATION OF PUBLIC LANDS

1. *Public lands concession: new applications.*—More public land applications have been received during the year covered by this report than in the preceding year. The applications received during the year are classified as follows.

| Kind of applications | Number | Area in hectares |
|------------------------------------|--------|------------------|
| Homestead | 3,785 | 33,561 544 |
| Additional homestead | 147 | 4,19814 |
| Free patent | 81 | 6,152 123 |
| Additional free patent | 25 | 1,4220 |
| Sales | 273 | 8,848 0106 |
| Additional sales | 5 | 60 5000 |
| Miscellaneous sales .. | 2 | 3,56 |
| Insular Government property sales | 171 | 397 5 15 |
| Townsite sales | 3 | 1463 |
| Special purchase | 4 | |
| Lease ... | 2 | 9,417 0 068 |
| Miscellaneous lease | 290 | 115 4619 |
| Insular Government property lease. | 3 | |
| Reclaimed land lease .. | 2 | |
| Foresore lease .. | 257 | |
| Revocable permit | 412 | |
| Total | 8,267 | 58,772 3941 |

Many applications for townsite lots and other lands classified as residential, commercial, and industrial have to be turned down in view of the fact that the Secretary of Justice has not yet rendered an opinion on whether lands of this nature may, under Article XII of the Constitution, be sold.

A marked interest in commercial lots especially in the waterfront of Manila and Cebu, has been noted, but applicants for lots in the Manila Reclamation have been disappointed inasmuch as all the blocks in the Port Area district of the City of Manila have already been leased to private parties or reserved for government purposes.

2. *Approval of applications*—The number of applications approved during the year is 6,084 only, covering an area of 65,622 0012 hectares as compared with 8,337 applications approved in 1937. Of these applications approved during the year 4,248 are for homesteads, 1,087 for free patents, 291 for sales 48 for leases, and 410 for revocable permits.

In addition, 18 lease contracts have been prepared during the year under review. The following table shows the distribution of these contracts as compared with those of 1937:

| Kind of contracts | Number of contracts 1937 | Number of contracts 1938 |
|---|-----------------------------|-----------------------------|
| Agricultural land leases .. | 1 | 3 |
| Foreshore land leases .. | 1 | 17 |
| Reclaimed land leases .. | 1 | — |
| Miscellaneous land leases .. | 1 | 21 |
| Insular Government property and leases .. | — | 2 |
| Total .. | 5 | 45 |

3. Issuance of patents.—Graphically stated there were issued 8,722 patents in 1938 as compared with 8,504 patents issued in 1937.

4. Other actions on public land applications.—In addition to the acknowledgement and approval of new applications and the issuance of patents to applicants who have complied with all legal requirements, a total of 1,890 public land applications covering an area of 50,096.3803 hectares has been rejected during the year, which is much less than the number of applications rejected during the year 1937. This was brought about by the policy of accepting applications only for surveyed lands. Under the present policy, when an application is accepted by the Bureau, it is first ascertained whether the land is available for disposition so that if the application is ever rejected, it is no longer for any reason unknown to the Bureau at the time the application was filed out of the jurisdiction of the applicant, some

The following table shows the different actions taken during the years 1937 and 1938 on private land applications, the number of soil applications and the area covered thereby:

| 1947 | 1948 |
|-------------|------|
| 76 781 4613 | |
| 94 681 953 | |
| 78 574 753 | |
| 16 406 178 | |
| 85 284 796 | |
| 14 184 1164 | |

In the afternoon I went to the beach at the mouth of the river. The water was very shallow and there were many small pools where the water had collected. I saw several small fish swimming in these pools. I also saw some small crabs and lobsters. There were also some small birds flying over the water.

Davao-Cotabato Road which were surveyed during the year. Miang Subdivision which is in progress, the Banzalan Subdivision which was completed also in 1938, the Cebuano Barracks Subdivision which is partially completed, and the Magamay and Bulan Subdivisions which are in progress. The subdivisions in Tagum and along the Davao Agusan Road are attracting numerous homeseekers.

While activities in this regard in Luzon and Visayas are not as intensified as those in Mindanao, the survey of lands in places where it is believed the general welfare of the masses will be served was not neglected. In Cagayan, where the need for surveyed lots is urgent, there are the Maibig Plains and Camalaniugan Subdivisions; in Pangasinan, the Mangatarem Subdivision; in Pampanga, the Arayat Subdivision; in Occidental Negros, the Habi-Tabla Valley Subdivision, and in Nueva Vizcaya, the Pannappagan, Sta. Fe, Bagabag and Bambang Subdivisions. Most of these projects have been undertaken to meet the demands of actual occupants.

actual occupancy. 6. *Public land investigations.* The investigation personnel of the Bureau has been able to accomplish 32,014 investigations of various kinds during the year. At the same time, 29,727 new orders have been issued. Therefore, at the beginning of the year, there were only 12,790 investigation orders pending execution; there are still 12,545 orders pending at the close of the year classified as follows: preliminary, 7,327; final, 2,372; claims and counter-claims, 1,955; and miscellanous, 4,207.

7. Petty Cash Receipts. The petty cash collections for the year 1938 surpassed all previous years. The Central Office amounted to P525,991.84 as against P443,223.32 for 1937.

The following table shows the classification of the collections made for 1937 and 1938:

| Nature of collection | 1987 | 1988 |
|--|------------|------|
| Homestead fees on approved applications | P43 261 16 | |
| Sales payment | 106 748 83 | |
| Interest on deferred payment | 5 320 67 | |
| Use rentals | 746 758 29 | |
| Fees on revocable or provisional permits | 84 571 | |
| | 7 625 | |
| Estimated collections | | |
| for bids on sales applications | 19 882 01 | |
| | 5 224 28 | |
| Deposit for publication | 375 00 | |
| Deposit for survey | 84 09 | |
| Accounts payable | 84 | |

ADMINISTRATIVE SETTLEMENT OF CLAIMS AND CONFLICTS OVER PUBLIC LANDS

1. Decisions and orders, motions and petitions for reconsideration. During the year the Bureau rendered 6,023 decisions and orders as compared with 5,025 decisions and orders rendered during the preceding year. As usual efforts have been exerted to effect as many amicable settlements as possible of the pending cases.

Notwithstanding the large number of decisions and orders released during the year, only 326 motions or petitions for reconsideration have been received.

2. Orders of investigation and re-investigation. -There were issued 2,272 orders of investigation and re-investigation of public land claims and conflicts during the year. In addition, 5,084 miscellaneous communications regarding public land controversies were released.

ADMINISTRATION AND DISPOSITION OF FRIAR LANDS

1. Sale of vacant lots. —A total of 145 lots containing an area of 143.4 hectares and valued at ₱27,821 was sold during the year after the necessary subdivision has been made in accordance with Commonwealth Act No. 32. The area of friar lands remaining undisposed of has, however, considerably increased during the year in view of the surrendery by the Arencheship of 17,266.815 hectares of the San Jose Estate in Minaloro, as a result of the amicable settlement of Civil Case No. 44937.

2. Sale contracts. —A total of 152 sale contracts has been executed and approved during the year. Of this number, 145 contracts cover lands sold during the year while seven contracts were revised to conform to the change in the area and, consequently, also the purchase price of the land covered thereby as a result of the re-titration survey made.

Sale contracts involving 110 lots with a total area of 18,429.513 hectares valued at ₱626,741.17 were canceled during the year in view of the purchaser failing to pay its payments due. Most important among these was that made under the name of the Mafra Steel Company for a total area of 17,266.815 hectares valued at ₱571,190. On the other hand, 34 contracts have been revised to correspond to the purchasers having made payments to meet the cancellation of their contracts.

3. *Assignments and transfers.*—A total of 217 assignments of sale contracts involving the same number of lots has been approved during the year. At the same time, 62 lots whose purchasers died already have been ordered transferred to their heirs.

4. *Deeds of conveyance.*—There were issued during the year 769 deeds of conveyance covering a total of 2,002.0593 hectares valued at P363,589.83. This leaves a total of 2,945 lots containing an area of 5,338.4647 hectares fully paid according to the original contracts, but not yet finally conveyed to the purchasers.

5. *Collections.*—During the year, a total amount of P211,592.61 was collected on friar lands. These collections constitute payments of installments, interests or deferred payments, irrigation fees, and miscellaneous receipts.

LAND REGISTRATION AND OTHER LEGAL WORK

1. *Cadastral proceedings (Acts Nos. 1559 and 1771).*—During the year, 26 petitions for the institution of cadastral proceedings were transmitted to the Solicitor-General for filing in the proper courts, as against 22 petitions sent in the next preceding year. The petitions filed in 1938 involved 17,640 lots with an aggregate area of 243,649 hectares, while those instituted in 1937 involved 19,889 lots with a total area of 48,529 hectares.

2. *Compulsory registration proceedings (Sections 51 and 57 of Commonwealth Act No. 142).*—There were also transmitted to the Solicitor-General for filing in the proper courts 55 petitions for compulsory registration proceedings involving 313 lots with a total area of 17,241.9902 hectares as compared with 30 petitions sent in 1937 which involved 78 lots covering an aggregate area of 59,521.034 hectares.

Some of these proceedings were instituted for the settlement and adjudication of titles to lands which are believed to be of the public domain but are illegally occupied by persons whose rights thereto are open to question and who would not take the initiative of applying for the registration of said land in their names. Others refer to public lands reserved by Executive Proclamations for public purposes such as for school sites, market sites, industrial training camp sites, and agricultural experimental station sites, etc. Some refer to public land subdivisions.

3. *Claims and requests for amendment to petitions.*—There were filed in 1938 in the various courts of first instance, 421 claims and 51 requests for amendment to petitions in cadastral and compulsory registration cases as compared with 211 claims and 35 requests for amendments filed at the preceding year.

4. *Examination of ordinary registration applications.*—A total of 609 applications for registration and confirmation of titles to lands was received and examined as compared with 591 applications received and examined in 1937. Of the applications examined in 1938, 108 which involved an aggregate area of 12,490.691 hectares were opposed while 361 which concern a total of 31,197.064 hectares were not opposed.

5. *Examination of court decisions, orders, etc.*—During the year under discussion, the Bureau received 1,757 decisions and orders of the different courts of first instance in registration cases, 687 of which were in ordinary registration, 1,036 on cadastral, and 54 on compulsory registration proceedings.

ISOLATED LAND SURVEYS

1. *Surveys ordered to particular properties.*—The following statement shows comparatively the starting of isolated land surveys during the years 1937 and 1938:

| | 1937 | 1938 |
|---------------------------|-------|-------|
| On hand January first | 9,883 | 8,530 |
| Ordered during the year | 8,879 | 9,954 |
| Completed during the year | 6,121 | 4,921 |
| On hand December first | 8,846 | 6,133 |

2. *Surveys started in May.*—The number of survey details received in May and delivered up to December 31, 1938, as compared with those received during the same period of 1937, is as follows:

| | Private | | | Public | | | Mixed | | | Private | | | Public | | |
|------|---------|----|-----|--------|-------|-------|-------|---|---|---------|---|---|--------|---|---|
| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 1937 | 2,616 | 30 | 140 | 3,114 | 300 | 9,192 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1938 | 4,787 | 10 | 115 | 3,194 | 1,425 | 8,762 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

(A) Surveyed by private land surveyors.

(B) Surveyed by Bureau of Land Surveyors.

3. Projection on cadastral maps.—The number of surveys projected on cadastral maps for the years 1937 and 1938 is as follows:

| Kind of land survey | 1937 | | 1938 | |
|---------------------|---------|---------|---------|---------|
| | Surveys | Parcels | Surveys | Parcels |
| Private lands A | 541 | 6 132 | 2 138 | 6 902 |
| Private lands B | 71 | 1 11 | 48 | 14 |
| Public lands A | 168 | 5 887 | 7 881 | 7 881 |
| Public lands B | 7 | 2 75 | 1 8 | 2 848 |
| Miscellaneous | | | | |
| Total | 82 | 14 732 | 9 1 | 17 763 |

(A) Surveyed by private land surveyors.

(B) Surveyed by public land surveyors.

4. Computations on isolated land surveys.—The following tables show the comparative accomplishment in computations of isolated land surveys outside and within cadastral projects during 1937 and 1938:

Surveys outside cadastral projects

| Class of surveys | Completed during 1937 | | Completed during 1938 | | On hand on December 31, 1938 | |
|-----------------------|-----------------------|---------|-----------------------|---------|------------------------------|---------|
| | Surveys | Parcels | Surveys | Parcels | Surveys | Parcels |
| | | | | | | |
| Private lands A | 71 | 86 | 22 | 74 | 8 | 14 |
| Private lands B | 1 384 | 4 408 | 2 57 | 6 111 | 1 | 2 765 |
| Public lands A | 4 613 | 5 724 | 5 745 | 6 561 | 272 | 870 |
| Public lands B | 27 | 3 | 14 | 2 | 14 | 15 |
| Miscellaneous lands A | 77 | 1 060 | 720 | 1 289 | 206 | 898 |
| Miscellaneous lands B | 6 | 289 | 131 | 1 058 | 83 | 151 |
| Total | 6 737 | 11 441 | 8 81 | 11 110 | 1 782 | 9 309 |

Surveys within cadastral projects

| Class of surveys | Completed during 1937 | | Completed during 1938 | | On hand on December 31, 1938 | |
|-----------------------|-----------------------|---------|-----------------------|---------|------------------------------|---------|
| | Surveys | Parcels | Surveys | Parcels | Surveys | Parcels |
| | | | | | | |
| Private lands A | 427 | 2 028 | 708 | 2 841 | 165 | 959 |
| Private lands B | 1 | 4 002 | 1 813 | 5 626 | 167 | 1 873 |
| Public lands A | 4 75 | 5 191 | 3 601 | 4 625 | 67 | 82 |
| Public lands B | 6 | 14 | 7 | 7 | 8 | 8 |
| Miscellaneous lands A | 81 | 698 | 220 | 1 489 | 44 | 687 |
| Miscellaneous lands B | 231 | 819 | 249 | 872 | 44 | 389 |
| Total | 5 621 | 12 840 | 6 099 | 12 460 | 1 143 | 3 444 |

(A) Surveyed by public land surveyors.

(B) Surveyed by private land surveyors.

5. Preparation of plans.—The isolated surveys which were finally completed and for which plans have been prepared and approved by the Director of Lands during the year are shown in the following table:

| Class of surveys | Up to January 1, 1938 | | January 1, 1938 to Dec. 31, 1938 | |
|-----------------------------|--------------------------|------------|-------------------------------------|---------------|
| | Surveys | Parcels | Surveys | Parcels |
| Public land surveys (A) | 4 | 259 | 6,772 | 8,649 |
| Private land surveys (A) | 1 | 0 | 23 | 30 |
| Private land surveys (B) | 6 | 23 | 41 | 91 |
| Private land surveys (C) | 8 | 503 | 4,082 | 10,174 |
| Government land surveys (A) | 2 | 13 | 40 | 82 |
| Government land surveys (B) | 5 | 23 | 84 | 131 |
| Government land surveys (C) | 69 | 141 | 681 | 1,523 |
| Geographic land surveys (D) | 6 | 26 | 273 | 8,260 |
| Total | 188 | 985 | 11,068 | 21,497 |

| Class of surveys | Up to January 1, 1938 | | January 1, 1938 to Dec. 31, 1938 | | Total | |
|-----------------------------|--------------------------|---------------|-------------------------------------|--------------|------------|--------------|
| | Surveys | Parcels | Surveys | Parcels | Surveys | Parcels |
| Public land surveys (A) | 6,571 | 6,671 | 36 | 299 | | |
| Private land surveys (A) | 1 | 18 | 1 | 12 | | 0 |
| Private land surveys (B) | 42 | 18 | 1 | 6 | 43 | 0 |
| Private land surveys (C) | 1,892 | 5,623 | 2,000 | 4,697 | 126 | 857 |
| Government land surveys (A) | 61 | 329 | 1 | 5 | 0 | 0 |
| Government land surveys (B) | 13 | 209 | 0 | 145 | 0 | 0 |
| Government land surveys (C) | 722 | 1,411 | 106 | 753 | 118 | 222 |
| Government land surveys (D) | 263 | 1,341 | | | | 56 |
| Total | 8,262 | 15,886 | 2,167 | 6,668 | 953 | 1,039 |

(A) Surveyed by public land surveyors.

(B) Surveyed by private land surveyors.

NOTE.—The figures appearing in the columns for surveys (see vols. I to IV) include the number of surveys and parcels which were corrected and resubmitted by surveyors.

6. Work on hand—Isolated land surveys.—The following table shows comparatively in parcels the progress of verification work on isolated land surveys in the Central Office during the last two years:

| Year | Completed | Received | In progress | Canceled |
|------|-----------|----------|-------------|----------|
| 1935 | 13,712 | 27,125 | 22,444 | 586 |
| 1936 | 11,233 | 34,242 | 34,232 | 285 |

7. Surveys finally completed.—The following table shows comparatively the number of isolated land surveys finally completed during the years 1937 and 1938:

| Year | Number of surveys | | Average per survey |
|------|-------------------|-------------|--------------------|
| | Completed | In progress | |
| 1937 | 2,021 | 29 | P2,000.66 |
| 1938 | 4 | 29 | P4,842.48 |

8. Verification fees for surveys executed by private land surveyors.—The following shows the comparative collections for verification fees for the last two years.

| Year | Number of surveys | | Average per survey | Total amount |
|------|-------------------|-------------|--------------------|--------------|
| | Completed | In progress | | |
| 1937 | 2,021 | 29 | P1,841 | P3,712.85 |
| 1938 | 4 | 29 | P8,083 | P64,348.08 |

CADASTRAL LAND SURVEYS

1. Projects inaugurated.—The cadastral projects inaugurated during 1938 were as follows:

| Province and its capacity | Number of surveys | | Average per survey | Total amount |
|---------------------------|-------------------|-------------|--------------------|--------------|
| | Completed | In progress | | |
| Davao | | | | |
| Cagayan de Oro | 28 | 1 | P1,000 | P29,000 |
| Cotabato | 2 | 1 | P1,000 | P2,000 |
| Surigao | 2 | 1 | P1,000 | P2,000 |
| Maguindanao | 284 | 3 | P1,000 | P284,000 |
| Total | 323 | 5 | P1,000 | P323,000 |

The execution of the cadastral projects listed in the foregoing table was authorized by the Office of His Excellency, the President of the Philippines, on September 7, 1937. The purpose of the survey of the same was primarily to curb the expansion of alien landholdings and public land grabbing in said municipal districts.

2. Cadastral projects in progress in the field.—On December 31, 1938, there were 8 cadastral projects in progress in the field.

namely 6 projects under Act No. 2259, as amended, in the municipalities of Sta. Cruz, Tagum, Guatiga, Compostela, Saug and Kapalong, Province of Davao, and 2 projects under Act No. 3327 in Katibawasigan and Oton, Bohol.

3. *Cadastral surveys and cadastral mapping*. - The field work on 2 cadastral projects completed in 1938 involved 4,515 lots containing a total area of 6,380 hectares, as compared with 3 projects finished in 1937 which comprised 9,40 lots having an area of 170,090 hectares.

4. *Computations of land public and subdivision surveys*. - During the year 1938 the Bureau of Lands completed the computation work on 16,490 lots covering an aggregate area of 67,610 hectares in various cadastral and public and subdivision projects, as against 25,142 lots with an area of 288,192 hectares completed during the preceding year.

5. *Cadastral survey maps*. - During the year, the work accomplished on cadastral survey maps involved 46,157 lots comprising an area of 59,163 hectares as against 25,178 lots covering an area of 284,953 hectares accomplished during the preceding year.

6. *Progress of cadastral, land public and subdivision surveys*. - The cadastral and public land subdivision surveys completed in the field and the survey returns of which were submitted to the Manila Office during the period from April to December 31, 1938, reached a total of 1,115 cases involving 1,165,628 lots with an aggregate area of 1,317,687 hectares.

7. *Constitution of tax collections*. - The collections in 1938 which accrue to the cadastral revolving fund, exclusive of the collections on account of registration procedures amounted to ₱302,961.36 as compared with ₱380,885.78 collected during the preceding year.

8. *Collections of cadastral costs*. - The following statement shows the total collections of cadastral cost, including charges for monumenting, penalty, interest, miscellaneous service, etc. for the last two years:

| Year | Amount |
|------|------------|
| 1937 | ₱15,709.63 |
| 1938 | ₱31,601.79 |

BUREAU OF SCIENCE

RESEARCH

1. *Industrial chemical research*. - Experiments began a number of years ago brought about basic and necessary data for the promotion of numerous industries. There are now Philippine

factories manufacturing paints, varnishes, cement, roofing tiles, and other industrial products from Philippine raw materials.

The construction of pilot plants for the production of commodities developed in the bureau has been continued. These miniature factories are a great help in promoting industries for they show the public exactly how raw materials are processed into finished commercial products.

2. *Tanning and manufacture of leather*—As a result of investigations made on the preparation of tanning extracts and the art of tanning, excellent tanning extracts have been made from certain Philippine tanbarks. Hides tanned with these extracts produced leather of excellent quality.

3. *Vegetable oils*—Investigations on Philippine vegetable oils have shown the possibility of developing edible-oil industries.

Coconut oil has been found to be an excellent material in manufacturing high-grade soaps. Recently the bureau has been very instrumental in the establishment of local soap factories.

Deodorized coconut oil, refined in the bureau, is now being used for canning fish in the Bureau of Science cannery at Estancia, Iloilo. As a substitute for imported vegetable oil the refined coconut oil has given excellent results. The refined oil is also suitable for medical and pharmaceutical purposes.

With the aim of producing new products from coconut oil and of devising new uses for it, researches are now in progress.

4. *Cellulose and paper-pulp industry*—Researches on cellulose and wood pulp were continued during the year. A method for degumming and bleaching decorticated ramie fiber was perfected. Investigations are in progress on the following: pulping studies of Canton fiber (and banana); chemical and physical properties of Canton fiber; hand-made paper from local materials, like abaca waste, as a home industry; and commercial products from cellulose.

5. *Forest products (copal resins)*—Researches on forest products were continued. The work was confined mostly to an investigation of Mai-a copal which is the most important of Philippine resins. These natural resins (copals) are obtained as excretions from forest trees. Copals are used for making varnishes and other commercial products. They have been found to be superior to the manufactured (synthetic) resins.

The method in analyzing copal was improved and pure copal acids were made from the crude resin. Copal samples from the provinces were analyzed during the year. Numerous varnishes and other products were made from copal.

6. *Ceramics.*—Industrial research in the ceramic laboratory has been very successful. The demonstrations given by the bureau on the manufacture of glass bottles and roofing tiles from local raw materials were instrumental in the establishment of a glass factory and another factory for the manufacture of roofing tiles.

Samples of clay from different provinces have been tested to determine their suitability for tile and brick manufacture. Experiments are in progress to ascertain the durability of clay-asbestos shingles made in the bureau.

7. *Dyes.*—The dye laboratory in the bureau after a series of experiments has been able to extract coloring matter from the sawdust of ipil, taguile, and narra. Experiments on dyeing cotton with this coloring matter gave excellent results. Investigations on the process of dyeing under local conditions and the use of mordants are in progress.

8. *Miscellaneous chemical investigations and other researches.*—Chemical research on a number of other projects is also in progress. Some of the more important of these are the following: the preparation of reducing sugars and alcohol from cassava starch; investigation of Philippine clays for refining vegetable oils, the use of "bonote" liquor as wood dye and as a tannin; corrugated roofing fiber boards from Philippine raw materials; the oil content of Philippine castor beans from different localities; analysis of Philippine chromite; comparative study of methods for determining rotenone in Philippine derris; service tests of various motor fuels and crankcase lubricants under local conditions; development of fire and waterproofing fiber with carb intended for roofing; some factors influencing the manufacture of tatajuna and quinine sulfate from cinchona bark; and iodine in Philippine seaweeds.

The following other researches are in progress: studies on the industrial possibilities of the different species and strains of Philippine yeasts; the utilization of rice hull for the production of solvents by fermentation; and preparation of wines and other fermented beverages.

9. *Industrial microbiology.*—The following investigations along this line were finished: butyl-acetic fermentation of cassava and molasses; manufacture of butyric acid vinegar from sweet potatoes and cassava; production of ethyl alcohol from cassava and sweet potatoes; and determination of the specific identity and mode of transmission of a new trematode parasite of man.

10 Fish and Game Administration—Researches on fishes, mammals, birds and marine animals were carried out at various districts in the Philippines. The effects of explosives on fish were also studied.

The motorboat "Science I" made several trips to Lingayen Gulf, Palawan, and the Visayas, in connection with the studies on various fishing methods, collection of fishes, survey of breeding grounds, observation of temperature and salinity of sea water, oceanography, patrol and investigation work.

The following investigations were finished: review of Philippine *Hemocentridae*, fish fry industries of the Philippines, fishery survey of different fishing grounds and cause of depletion in some important places, fishing with luminous lights with finely woven abaca net, known as pakot, pakot fisheries of Laguna de Bay; destructive effect of *Catoptera* sp. and *Uca* sp. in brackish fishponds; certain animals found destructive to oysters in Bacoor Bay, oyster fishery of Lingayen Gulf, salt industry of the coastal regions of Pangasinan, La Union, Ilocos Sur, and Ilocos Norte; and duck raising and snail fishing in Laguna de Bay, Luzon.

11 National Museum—Several investigations started in 1937 were completed and some are still in progress.

Some of the more important researches in progress are given below:

- (a) Revision of Philippine Lepta and Philippine Psalota;
- (b) Ethnographic study of the Bakas of Palawan;
- (c) Study of the climate effects on cotton fibers;
- (d) Study on brown spot of red peaches;
- (e) Study of hay fever parts and fungi causing skin diseases in the Philippines;
- (f) Entomological studies of the Pampangan, Kapampangans, Tagbanuas, Ibanags, and Negritos; and
- (g) Study of the pine leaf hoppers and the control of mosquitoes and houseflies.

INDUSTRIAL ENGINEERING

The following were accomplished along this line during the year: construction of a press to be used in the manufacture of jute oil from cassava, construction of a extractor and a hand press for the Cagayan pilot plant, construction of a paper mill and experimental tanks for the manufacture of ceramic products, a pulverizer for chonta bark, and an ash bed incinerator.

SCIENTIFIC LIBRARY

The number of bibliographies and lists of references prepared during the year totalled thirty three. The compilation of the "Alphabetical and Classified Lists of Serials Available in the Scientific Library" was the most important undertaking of the Library during the year.

MISCELLANEOUS SERVICE

During the year under review, a great deal of publicity was given to the industrialization of Philippine products. Free demonstrations in the process of making soap and other products were given frequently. Considerable time and effort were devoted by the technical personnel of the Bureau to the consultation and demonstration service and to the handling of correspondence in connection with extension work.

As in the previous year, tests on the strength of cement, concrete, and other materials used in the construction of buildings were performed by the Bureau of Science for the Bureau of Public Works, a number of samples of weights and measures standardized and certified for the Bureau of Internal Revenue; and laboratory control and service tests of miscellaneous materials, such as fuels, lubricants, metals, alloys, paints, and waters, made for the Manila Railroad Company.

The analyses of industrial products, such as cement, paints, lubricants, fuels, metals, vegetable oils, and fertilizers sold in the Philippines, were maintained.

The Fish and Game Agency rendered continuing effective help to the fishing industry in the Philippines. Extension and cooperative work was carried out during the year with the end in view of further improving the fishing industry.

The National Museum Division continued activities along educational lines. It was concerned, not only with the acquisition, preservation and exhibition of objects of natural history and industry, but also with dissemination of information of their usefulness and application to everyday life. Identifications were made of plants, roots, shells, corals, and other specimens. A studio wax and plaster models of fruits and vegetables were made and numerous birds and animals were mounted. Exchanges of specimens were made with a number of institutions and individuals. A total of 26,504 persons visited the National Museum during the year.

The power plant of the Industrial Engineering Division continued furnishing electric current, steam, air, vacuum, artesian water, and refrigerating service to the bureau, the Philippine General Hospital, and the Colleges of Medicine and Liberal Arts of the University of the Philippines.

The Scientific Library helped in the acquisition of books for, and in the organization of, the libraries of the National Development Co., the Quezon Institute, and the People's Homesite Corporation. The faculty members of various universities were given the usual necessary assistance.

The Photographic Section of the bureau now has 36 large albums containing over 65,000 photographs which depict the customs, habits, and industries of the Filipino people.

RESEARCH PUBLICATIONS

The following research papers were either published or submitted for publication:

- 1 Decolorizing carbon and water glass from rice hull ash, by A. O. Cruz and A. P. West;
- 2 A method for decolorizing and bleaching decorated ramie fiber, by M. P. Ramiro;
- 3 Analysis and composition of Manila copal, by S. S. Tanchico and A. P. West;
- 4 Natural dyes obtained from ilan, tarry, and tagalog sawdust, by F. Agao, M. Ade, and R. Cohen;
- 5 Bureau of Forestry's contribution to agricultural classes, by M. Tibang, A. M. Lutisan, and P. H. Poblano;
- 6 Manufacture of beet grape vinegar from sweet potatoes and cassava, by P. J. Aguil;
- 7 Determination of percentage error and mode of transmission of a new trinitro para-phenol by M. Tibang;
- 8 Cultural activities at a state of Dennis et al under the Bureau of Forestry, Vigan, in cooperation with the Bureau of Forestry, by J. Maranon, L. Coome, and M. Sait;
- 9 Analysis of Philippine chrysanthemum by R. Olivero, R. Aguirar;
- 10 Comparative study of methods for determining retencne in Philippine rices by J. Maranon and L. Coome;
- 11 The propagation of cotton 138 varieties from San Fernando, La Union by R. Sisonao and F. Reyes;
- 12 A new Turnip from Occidental Negros, by H. A. Roxas and G. L. Ablan;
- 13 A new species of Fagopyrum from Northern Luzon, by G. J. Blanco;
- 14 A review of Philippine Hydrocarbons, by J. R. Montilla;
- 15 Birds from Leyte, by I. S. Rhee;
- 16 Certain algae found suitable to grows in Bacoor Bay, by D. V. Vining and D. K. Vining.

17. Contributions to the early life history of *Tamnota t. lateralis* Agassiz, by G. J. Blanco;
18. Fishing with light in Isat Bay and neighboring places, by J. S. Domantay;
19. Fisheries of Northern Luzon including the Babuyan and Batanes Islands, by G. J. Blanco;
20. Five other known species of *Penaeus* in the Philippines, by D. K. Villaluz and F. J. Arriola;
21. Food of some birds about rice fields in the Philippines, by C. G. Manuel;
22. Note on the invertebrate fauna of Sakel Island Lagoon, Zamboanga, by J. S. Domantay;
23. Notes on some rare inhabitants of brackish fishponds and their injurious effects, by J. S. Domantay;
24. Notes on fish recently collected from the Islands of Paluwan and Busuanga, by C. G. Manuel;
25. Notes on the time-fishing and long line fishing of Davao Gulf, by C. Martin;
26. Observations on the breeding of the dwarf gourami, *Trichogaster laliota* (Ham & Buch), by J. S. Domantay;
27. Oyster farming, by D. K. Villaluz;
28. Shell fishing and tick raising in Laguna de Bay, Luzon, by D. K. Villaluz and F. J. Arriola;
29. Philippine mushrooms, by J. M. Morazan;
30. Studies on the anatomy of the bangus, *Catfish chrysostoma* (Forskal), by D. S. Rabor;
31. The littoral Asteridea of Panacera Bay and adjacent waters, by H. A. Roxas and J. S. Domantay;
32. The marine fishes of the Philippines and the problems affecting their propagation, by D. V. V. Ladah;
33. The marine fauna of the Mindanao Passage off Zamboanga, and neighboring places, by J. S. Domantay;
34. The flying-fishery of Cebato and its estuary resources, by J. S. Domantay;
35. The fishes of the Samar Islands, by D. S. Rabor;
36. The marine organisms from a study of northwestern Luzon, by G. J. Blanco;
37. The flying-fish fisheries of northwestern and southwestern Cebu, by C. Martin;
38. The salinity of Cebuano Sea, by G. J. Alar;
39. The types of Tawian River, Misamis, Oriental Province, by P. R. Manacop;
40. The freshwater leptocephalus in certain rivers of Mindanao, Oriental Province, by P. R. Manacop;
41. Two new species of leptocephalus from one of the Philippines, by G. J. Blanco;
42. Two new species of pipefishes, by C. Martin;
43. Two species of *Paracirrhites* in the Philippines, by G. J. Alar and G. L. Alcasid;

- 44 Two rare pediculate fishes from the Philippines, by A. G. Ago.
- 45 Fisheries of northwestern Luzon, by G. J. Blanco.
- 46 Problems of and adjustments in the fishing industry, by D. V. Villadolid;
- 47 The fishing industry of Sulu and its fishery resources, by J. S. Domantay;
- 48 The present pearlind industry of Mindanao and Sulu; causes of its decline in the past and the prospect of its future rehabilitation, by J. S. Domantay;
- 49 The fisheries of Lake Mainit and of northeastern Surigao, including the Islands of Linagat and Sarrap, by P. R. Manacop;
- 50 A revision of Philippine Leports, by J. M. Mendoza and S. Leus-Palo.
- 51 Studies in Philippine orchids, by T. Quisumbing and
- 52 Fish fry industries of the Philippines, by D. V. Villadolid and G. J. Blanco.

BUREAU OF COMMERCE

The following is a brief statement of the activities of the Bureau of Commerce during the year under review:

1. *Trade information service.*—The dissemination of commercial and industrial information and data of practical value to businessmen, industrialists, retailers, farmers, and capitalists desiring to invest in prospective industries or business is one of the major functions of the bureau. This is carried out through its trade information service. During the year, about 7,000 inquiries, oral and written, calling for information and statistics about Philippine industries and commerce were attended to by the bureau. Eighty-six trade opportunity notices were published. This brought about 500 new trade connections between Philippine traders and importers and exporters in the United States, Canada, Peru, Egypt, Venezuela, Turkey, Gold Coast, West Africa, British India, Switzerland, Burma, China, Manchoukuo, Netherlands, Italy, Great Britain, Brazil, Germany, Porto Rico, Mauritius, Hawaii, British East Indies, Virgin Islands, and Dutch East Indies. Over 3,000 business connections between Manila merchants and provincial distributors were likewise accomplished. For the purpose of explaining the services and accomplishments of the bureau the provincial commercial supervisors held not less than 82 community assemblies through out the Islands attended by about 5,000 people. Directories of industrial and commercial establishments in the provinces have been prepared for publication in the near future.

2. *Consumers' cooperatives.*—In order to increase Filipino participation in the retail trade of their own country, the promotion of cooperative associations among consumers and retail store owners was carried on with vigor. The first step toward this end was the organization of a central body known as "The Consumers' Cooperative League of the Philippines," which was incorporated and registered on October 18, 1938. The next move was the formation of committees for the organization of provincial chapters. The first chapter organized was the Bureau of Commerce Consumers' Cooperative Association composed of the employees of the Bureau. This chapter has at present 133 members and a capital of ₱496. A store which supplies its members with articles of necessity was opened on November 19, 1938. The next chapter organized was the Union College of Manila Cooperative Store, with 200 members and a capital of ₱1,000. Six chapters are in process of organization. Manila, Province's commercial supervisors are supervising the organization of local chapters in Pangasinan, Cagayan, Cebu, Iloilo, Occidental Negros, Cotabato, Davao, and other provinces.

3. *Agricultural cooperatives.*—Another important function of the Bureau is the promotion and supervision of agricultural cooperative marketing associations, bonded rice warehouses, and agricultural credit cooperative associations. Through the campaign work undertaken by provincial commerce supervisors, six new agricultural cooperative marketing associations were organized and incorporated during the year, making the total number of such associations 160. Several associations are now in process of organization in the Province of Abra Sur, Ilocos Sur, Zambales, Tayabas, Mirandique, Laguna, Ilocos Sur, and Camarines Sur, and the Mountain Province. These associations made sales of agricultural products valued at approximately ₱8,000,000.

During the year 1938, 106 leases for the business of receiving rice and grain for storage under Act No. 3893 were issued, as against 126 issued the previous year.

Fifty-four out of 569 agricultural cooperative associations have declared dividends amounting to ₱85,671. The collection of overdue loans was intensified and the amount of ₱60,584 due the Agricultural Cooperative Fund was collected during the year. At the beginning of the year, 166 agricultural credit cooperative associations were indebted to the Agricultural Co-operative Fund, of which seven fully paid their accounts during

the year. The outstanding loans, including new loans granted to two associations during the year, now amount to ₱647,309.

4 *Export inspection service.*—The Bureau continued its export inspection service for the benefit of rice and peanut exporters. During the year it issued 78 certificates of import on 7,212 sacks of rice and 28,305 sacks of peanuts for export. Inspection fees totalling ₱373 were collected.

5 *Certification of current commodity prices.*—One of the services accomplished by the Bureau during the year was the certification of average current local prices of rice, palay, corn, and banding or construction materials in fire- or typhoon-stricken towns and provinces where the existence of public calamity was proclaimed by His Excellency, the President of the Philippines. In connection with the enforcement of Act No. 4164 nine certificates of average commodity prices in the places devastated by typhoons or fire during the month preceding the occurrence of the typhoon or fire were issued by the Bureau.

6 *Marketing of agricultural products.*—Agricultural products valued at ₱1,909 were sold by the Bureau for provincial producers. During the year it sold for provincial consignors 25,151 kilos of copra, 17 bales of leaf tobacco, 96 piculs of centrifugal sugar, vegetable lard, cacao, starch, milk, salt, matches, Chinese tea, potatoes, onions, gasoline, soap, paper bags, cloth, all valued at ₱1,179.

7 *Apprehension of unfair trade practices.*—Several cases of unfair trade practices were apprehended by the Bureau's agents in Manila and in the provinces. In Vigan, Ilocos Sur, two stores were found selling 'Eveleady' flashlight batteries, a violation of the Unfair Competition Law. A cigar pipe branded "Ambar Legitimo" was found in a store in Manila; 553 tins of imitation "Menen" powder were confiscated from a Chinese store in Cebu; a certain person in Manila was found displaying pictures taken by a well-known photographer, ostensibly to profit from the goodwill of the latter's business. The parties concerned were warned to abstain from committing further acts of unfair competition.

8 *Registration of corporations, trade-marks, trade names, patents, etc.*—With the transfer of the function of registering corporations and partnerships from the Bureau of Commerce to the Securities and Exchange Commission, the Bureau's registration activities have since June, 1938 been confined to trade-marks, trade names, and United States Letters Patent. Four

hundred eighty applications for trade-marks and trade names were received and examined, of which 326 were approved and registered. One hundred forty-three were filed by American firms. In addition, three labels not accompanied by application papers were examined.

Sixty-four certified copies of United States Letters Patent were filed in the Bureau of which 39 were owned by American inventors. Eleven assignments of patents were also recorded.

Out of 3,820 applications received for the registration of business names, 3,552 were registered and 73 were rejected either for being in conflict with other names already registered in this Bureau or not permitted by law or regulations. Nine hundred one parties were advised to register their business names, the majority of whom complied with the request. Five proprietors of business establishments were prosecuted for violation of the Business Name Law. The cases are pending in court. Seventy-six sales were registered, and 269 bulk sales documents were recorded.

9. *Promotion of small and household industries* — The campaign to increase the sales of Made-in-the Philippines products was pushed through with greater vigor. The Manila Trading Center, through its Commercial Samples Display Room, extended its services to local manufacturers, other than exhibitors already established in the Center, by displaying representative samples of their products free of charge. It worked for the establishment of better grades or standards of quality for Philippine-manufactured products and assisted Philippine manufacturers in establishing business connections with distributors, local and foreign. In the 1938 Philippine Exposition, the Bureau sold ₱1,726 worth of Philippine-made products. During the celebration of the Made-in-the Philippines Products Week and the Fifth Anniversary of the Manila Trading Center and Exchange, it sold Philippine products valued at ₱6,976 in the exposition held at the former Manila de Piedad Building. In the Seventh Floating Exposition the exhibitors realized sales amounting to ₱75,511 exclusive of wholesale orders. As a result of the First and Second Riding Expositions held with the cooperation of the Manila Railroad Company, made-in-the Philippines products valued at ₱11,600 and ₱11,268, respectively, were sold by the participating manufacturers. The Bureau participated, through its provincial commercial supervisors, in 14 provincial and municipal carnivals, fairs, and exposés wherein local products worth ₱3,820 were sold.

Towards the end of the year the van of the Manila Trading Center was reconditioned in order to peddle representative goods on display and sale in the Trading Center in the various districts of the City and suburbs. This was calculated to intensify the sales campaign in order to aid small Philippine manufacturers and household industries. The traveling store made a total sale of ₱736 in twenty selling days.

16. *Commercial extension service.*—To bring the Bureau closer to the people, the Commercial Extension Service of the Bureau was reinforced. Fourteen more commercial agencies were established during the year, making in all thirty agencies now scattered throughout the Philippines. A realization of the importance of the work of the Bureau's provincial commercial supervisors is rapidly growing. Farmers, manufacturers, and retailers and even provincial and municipal officials now realize that the agents of the Bureau can do much in the promotion of commerce, industries, and agriculture in their respective districts. Among the many things that the provincial commercial supervisors do in behalf of Filipinos farmers and businessmen are furnishing quotations on farm products, organizing cooperatives which include marketing, agricultural credit, and consumers' establishing business connections between manufacturers and distributors, promoting the sale of native products, preventing unfair trade practices, and giving suggestions and extending help to beginners in business. The Bureau's agents also take advantage of every opportunity to inform the masses about the social justice program of the administration.

WEATHER BUREAU

1. *Typhoons and depressions.*—There were more typhoons and depressions in 1938 than in 1937. Twenty-six typhoons and thirteen depressions occurred in 1938. They took place as indicated in the following table.

| Month | Number of Typhoons | | Number of Depressions | |
|-----------|--------------------|------------|-----------------------|------------|
| | Number | Percentage | Number | Percentage |
| January | 1 | 3.8 | 1 | 3.8 |
| February | 1 | 3.8 | 1 | 3.8 |
| March | 1 | 3.8 | 1 | 3.8 |
| April | 1 | 3.8 | 1 | 3.8 |
| May | 1 | 3.8 | 1 | 3.8 |
| June | 1 | 3.8 | 1 | 3.8 |
| July | 1 | 3.8 | 1 | 3.8 |
| August | 1 | 3.8 | 1 | 3.8 |
| September | 1 | 3.8 | 1 | 3.8 |
| October | 1 | 3.8 | 1 | 3.8 |
| November | 1 | 3.8 | 1 | 3.8 |
| December | 1 | 3.8 | 1 | 3.8 |
| Total | 13 | 100 | 34 | 100 |

2. *Rain stations*.—Through the combined effort and cooperation of the Bureaus of Forestry, Public Works, and Weather, sixty-five rain stations were established in 1938 thus bringing back to life the pluviometric system of the Philippine Islands that was wrecked in the depression of 1933. To cause the City of Manila to cope with the problems linked with the design of sewer-sy tems and control of floods, there was established in the city a net of rainfall stations covering the watershed of the city at the rate of one rainfall station for every two square miles. These rainfall stations are located at the Good Shepherd College, Bantawak, Canarian, Cuernos de Cebú, San Francisco del Monte, Bureau of Animal Industry, Pandacan Health Office, San Lazaro, and Public Welfare Bureau at Wenceslao Ille. In accordance with instructions of His Excellency, the President of the Philippines, there was also established at Burdeos, Peñalo Island, a third-class weather station.

3. *Aerological station*.—During the year the Bureau maintained four aerological stations for obtaining upper wind observations by means of pilot balloons. Aparri, Manila, Cebú, and Zamboanga have a series of two observations each day, weather permitting, throughout the year. The station of Dagupan began operating in October. By the end of November, this station was functioning satisfactorily and at the end of the year 1938, preparations were made for regular ascents twice daily. The number of ascents during the year totaled 665 at Aparri, 729 at Manila, 678 at Cebú, and 665 at Zamboanga.

4. *Earthquakes*.—The total number of seismic disturbances recorded in Manila during the year was 898. Even earthquakes, the centers of which were at various distances, were felt in the City of Manila. The total number of earthquakes reported as felt in the Philippines was 177.

5. *Time service*.—The Weather Bureau, through its Astronomical Division, continued the daily transmission of time signals to the telegraph office of the Bureau of Posts, Manila Railroad Company and the United States Naval Station at Cavite.

The correct time was maintained by three master clocks of the Observatory, namely: Scott Synchroton No. 33, Reithler No. 42, and Reithler No. 251. Clocks Nos. 15 and 42 beat Manila Standard Time while clock No. 251 maintains local Solar Time.

6. *New apparatuses*.—The following new apparatuses were obtained and put into service during the year: (a) High-speed chronograph; and (b) Mascart self-recording electrometer.

BUREAU OF MINES

DISPOSAL AND ADMINISTRATION OF MINERAL LANDS

As stated in the previous report of this Office, this heading includes disposition of mineral lands by location and lease under the provisions of Commonwealth Act No. 137, the Mining Act, as amended by Commonwealth Act No. 309, and mining grant under the former mining laws which continue to be in force and effect. During the year a total of 6,463 mining locations was made throughout the entire Archipelago, with an aggregate approximate area of 69,570 hectares. Six lode leases, two placer leases, five coal revocable permits, two geological exploration leases, and one petroleum drilling lease were granted during the year. Two coal leases covering a total area of 986 hectares were issued under Coal Land Act No. 2719 of May 14, 1917.

There was a total of 27,670 mining documents registered in the mining registers throughout the Philippines during the year. The total fees collected on these documents amounted to ₱101,133.

SURVEYS OF MINERAL LANDS

The following surveys were completed during the year:

- 978 lode location surveys;
- 7 placer location surveys;
- 183 lode lease surveys;
- 14 placer lease surveys;
- 7 coal lease surveys; and
- 9 coal revocable permit surveys.

Computation was completed on a total of 83 mineral land surveys covering 498 claims, including mining leases, lode location, placer location, coal lease, and coal revocable permits. A total of 2,001 mineral land surveys was finally plotted on index sheets. A total of ₱28,641.85 was collected as survey fees from location, mining lease, and coal land surveys executed by the Bureau. This amount constitutes the Special Survey Fund created under the authority of the Secretary of Agriculture and Commerce and the Auditor General.

ADMINISTRATIVE SETTLEMENT OF CLAIMS AND CONFLICTS OVER
MINERAL LANDS

The Bureau rendered 71 decisions and orders on claims and conflicts over mineral lands, three of which, upon appeal to the Department, were affirmed. Attorneys of the Bureau cooperated

with the attorneys of the Bureau of Justice in the investigation of cases involving violations of Commonwealth Act No. 108, the Dummy Law.

GEOLOGICAL AND MINES SURVEYS

Geological studies, examination, and investigation were made and conducted on the following: (a) the hydroelectric plant on the Agno River; (b) the proposed dam site for hydroelectric plant on the Calraya River, (c) the cement plant site for the Cesa Portland Cement Co in San Fernando, La Union, (d) the Sargao Iron Ore Reservation and the Camarines District, (e) the chromite deposits at Masinloc, Zambales and Lagonoy, Camarines Sur and (f) the Malangas Coal Deposit.

As part of the campaign to foster safety in mine operation, first aid and safety instructions were given to students of the University of the Philippines and the Safety Inspectors of the Department of Labor.

ASSAY AND METALLURGICAL WORK

The assay laboratory of the Bureau handled during the year 779 samples, including gold bars amounting to ₱1,411,166.28, for fineness determination. The number of samples submitted during the year under review is only one-fourth of the total number of samples received in 1937. This is due to the newly established commercial assay laboratories in the City of Manila.

MINING EXAMINATION AND VALUATION

As in previous years, the valuation of mines and mining claims was undertaken by the Bureau in cooperation with the Securities and Exchange Commission. This work was done in connection with the purchase of mines and mining claims by corporations and applications for permit filed by mining companies to sell or release stocks.

FIBER INSPECTION SERVICE

The downward trend of prices of Philippine fibers which started at the beginning of the year 1938 continued throughout the year. The bottom of the depression as regards the ordinary cordage grades (F and below) was reached about the end of the month of March when "F" was quoted at 18¢ while "J2" at 17¢ per piec and "J2" at 17¢ per piec. These prices recurred several times during the year.

The Davao Region, however, produced a substantial supply despite the unfavorable trend of the market. Abaca baleings during the first half of the year were 218,110 bales below those of the corresponding period in 1937, whereas the abaca baleings during the second half were 65,312 bales more than the corresponding period in 1937. The total for the year 1938 was 1,151,685 bales as against 1,304,483 bales for 1937.

The Fiber Inspection Service maintained the official standards of the different commercial fibers intended for export. In the work of supervision and inspection of bales of fiber for export the Fiber Inspection Service received effective help from all grading establishments.

To forestall if not to beway with the practice of speculating on prices of abaca fiber, the publication of statistical data relative to baleings shipments and stock beginning July 1, 1938, was suspended. This action brought about as expected protests and requests for the resumption of such publication not only from local exporters but also from dealers in London. As the continued publication of the same would prejudice Philippine fiber producers and small dealers the suspension thereof has been continued during the year.

1. *Convention of abaca platers.* The regular general meeting of the "Asociación Nacional de Productores de Abacá Inc." which was scheduled on the last Saturday of February, 1938, could not be held at that time on account of lack of quorum. For this reason, another meeting was called and held on June 27, 1938, under the auspices of the Fiber Inspection Service. The election of new officers for the year 1938 was held and several resulators were elected at this convention.

A convention of educational fiber inspectors was likewise held from February 17 to 19, inclusive. General matters relating to the industry were taken up in this convention.

2. *Fiber grading and inspection.*—The official standards of classification of abaca and other Philippine fibers were maintained through the supervision of the work of grading establishments and the regular inspection of all bales submitted for this purpose by the persons of the service in the four main district stations in Manila, Cebu, Davao, and Legaspi and the sub-stations operating under them.

During the year, one new inspection district was opened by the Service at Virac, Catanduanes under District No. 4.

At the end of the year, the inspection districts and stations operated by the Fiber Inspection Service were the following:

| | District | Branch stations | Inspection stations in operation |
|-------|----------|-----------------|---|
| No. 1 | Manila | | Manila and Tacloban, Leyte |
| No. 2 | Cebu | | San Pedro, Mactan, Iligan, Leyte, Sorsogon, Jico and Davao, Mindanao. |
| No. 3 | Davao | | TB 42 |
| No. 4 | Legaspi | | Legaspi and Tabaco, Albay, Virac, Catanduanes, Tigaon, Sorsogon, Samar, Cebu, Iloilo and Guadalupe, Negros and Batangas, Nueva Ecija. |

There were 52 grading establishments in operation during the year distributed as follows:

| | Establishments |
|-----------------------------|----------------|
| District No. 1—Manila | |
| Manila | 6 |
| Tacloban, Leyte | 2 |
| District No. 2—Cebu | |
| Cebu | 8 |
| Maitig, Leyte | 1 |
| Baybay, Leyte | 1 |
| District No. 3—Davao | |
| Talomo, Davao | 1 |
| Dalaon, Davao | 1 |
| Malita, Davao | 1 |
| Madaum, Davao | 1 |
| Sta Ana, Davao | 5 |
| District No. 4—Legaspi | |
| Legaspi, Albay | 6 |
| Tabaco, Albay | 3 |
| Legaspi, Albay | 2 |
| Virac, Catanduanes | 2 |
| Sabang S. J., Camarines Sur | 2 |
| Iriga, Camarines Sur | 1 |
| Tigaon, Camarines Sur | 3 |
| Sorsogon, Sorsogon | 1 |
| Balan, Sorsogon | 2 |
| Camiguin, Sorsogon | 2 |
| Galat, Sorsogon | 2 |

The following is a comparative tabulation of the number of bales of abaca and other fibers which have been inspected and either approved or condemned by Government fiber inspectors during the year 1938, as compared with those of 1937:

| | 1936 | | | 1937 | | |
|---------|-----------|---------|---------|-----------|----------|---------|
| | R. | I.C. | Percent | R. | I.C. | Percent |
| Abaon | 1 157 685 | 7 778 1 | 0.7 | 1 344 483 | 18 600 | 1.6 |
| Dioct | 15 | 15 | 0.0 | 15 | 15 | 0.0 |
| Mabini | 26 152 | 6 | 0.9 | 22 427 | 162 | 0.1 |
| Catib | 12 212 | 56 | 1.5 | 8 293 | 157 | 0.6 |
| Santa | 624 | — | — | 5 216 | 894 | — |
| Pililla | — | — | — | — | — | — |
| | 1 228 080 | 7 814 1 | 0.6 | 1 460 389 | 13 889 1 | 0.9 |

3. *Educational work.*—The educational campaign launched in the middle part of the year 1937 pursuant to General Memorandum No 223, dated August 30, 1937, to improve fiber production so as to meet the requirements of the market, local as well as foreign, and to give the producers such other information, including practical demonstration, as will enable them to understand the grades of fiber they prepare as well as the current market price thereof, was continued during the year under review with added vigor. Meetings and demonstrations for the purpose were held in the Provinces of Samar, Ilocos Norte, Capiz, Iloilo, Leyte, Cebu, Surigao, Agusan, Davao, Albay, Sorsogon, Catanduanes, Camarines Norte, Camarines Sur, and Masbate, by and under the supervision of the district inspectors of the Fiber Inspection Service.

DIVISION OF STATISTICS

The bulk of the work accomplished by the Division during the year consisted of collecting, systematizing, and preparing statistics on the following:

- (a) Production and values of nonmetallic products and estimates of livestock population;
- (b) Production, areas planted, and values of crops;
- (c) Number of births and deaths of animals; and
- (d) Meat production and consumption.

It coordinated general statistics for the Philippines, including those on commerce, industry, transportation, demography, natural resources, finance, banking, labor, and mining. Considerable portions of the summaries of the compilations and statistics prepared have been published in the Philippine Statistical Review.

The crop report and forecasting service have been improved as a consequence of the promulgation of Administrative Order No

7 of the Department on August 21, 1938, which, as stated elsewhere in this report, requires all field employees of the Department, particularly those appointed under the authority of Commonwealth Act No. 85, to furnish necessary data to make possible accurate compilation of statistics.

Among the institutions and offices which availed of the services of the Division are the following:

- (a) National Economic Council;
- (b) National Rice and Corn Corporation;
- (c) National Power Corporation;
- (d) National Research Council;
- (e) National Development Company;
- (f) National Fiber Corporation;
- (g) Department of the Interior and Finance; and
- (h) American Frans Commission and the United States Navy.

The services of the Division are likewise being taken advantage of by foreign institutions.

DIVISION OF PUBLICATIONS

In addition to the five main journals edited and published by the Division of Publications in previous years, namely, the Philippine Journal of Science, the Philippine Journal of Agriculture, the Philippine Journal of Commerce, the Philippine Journal of Animal Industry and the Philippine Statistical Review, there was edited and published during the year under review the Philippine Journal of Forestry. The Division rendered as usual photographic services for the different bureaus and offices under the Department of Agriculture and Commerce and performed multigraphing, mimeographing, bookbinding, and repair work. As an editorial and general service division of the Department, it contained editing for the bureaus and offices under the Department, bulletins and pamphlets issued by them. It either edited or supervised the editing among others of the following bulletins and pamphlets.

Bureau of Plant Industry contributions

Bureau of Plant Industry Farmers' Circular No. 10 - Practical Suggestions for Rural Improvement.

Bureau of Plant Industry Farmers' Circular No. 5 - Commercial Raising of Cabbage.

Bureau of Plant Industry Farmers' Circular No. 11 - Cotton Growing in the Philippines.

Bureau of Plant Industry Farmers' Circular No. 15 - Cigar Wrapper Leaf Tobacco.

Bureau of Plant Industry Farmers' Circular No. 20—Control of Insects and Other Pests

Bureau of Plant Industry Farmers' Circular No. 30—Rice Bug and Its Control

Bureau of Plant Industry Farmers' Circular No. 31—Rice Stem Borer and Their Control

Bureau of Animal Industry contributions:

Bureau of Animal Industry Bulletin No. 5—Las Enfermedades Peñleras y Contagiosas mas Comunes de Animales en Filipinas y su Prevención

Bureau of Animal Industry Bulletin No. 2—Explanation of Livestock Terms.

Bureau of Animal Industry Bulletin No. 12—Goose Raising

Bureau of Animal Industry Bulletin No. 11—Turkey Raising

Bureau of Animal Industry Bulletin No. 8—Lethor Manuk

Bureau of Science contributions:

Technical Bulletin No. 10—Useful Plants of the Philippines (Vol. 1)

Popular Bulletin No. 11—Food of Birds about Rice Fields in the Philippines.

Soil Survey Committee contributions:

Soil Report No. 1—Soil Survey of Bulacan Province (reprint)

Soil Report No. 2—Soil Survey of Rizal Province (reprint)

Soil Report No. 3—Soil Survey of Cavite Province (reprint)

Soil Report No. 4—Soil Survey of Batangas Province

Bureau of Mines contribution:

Technical Bulletin No. 9—Geology of the Baguio Gold District

Weather Bureau contributions:

Weather Bureau Meteorological Bulletin, May—August, 1937.

Weather Bureau Meteorological Bulletin, September—December, 1937.

Weather Bureau Meteorological Bulletin, January—April, 1938

Weather Bureau Meteorological Bulletin, May—August, 1938

Weather Bureau Meteorological Bulletin, July—December, 1938

Weather Bureau Meteorological Bulletin, January—June, 1939

Weather Bureau Meteorological Bulletin, January—June, 1940

Typical Organisms of China Sea

Observations of Rainfall in the Philippines, Supplement No. 1

Division of Publications contributions:

Technical Bulletin No. 11—Third Ten-Year Index to the Philippine Journal of Science.

Official Report of the Fifth Agricultural and Commercial Exposition.

Index to Volumes 8 and 9 of the Philippine Journal of Agriculture

Brief Instructions for the Preparation of Manuscripts (multi-graphed).

Publications distributed. — The following table shows the number of the publications distributed during the year.

| | |
|--------------------------------|--------|
| Periodicals and newspapers | 2,111 |
| Printed books, pamphlets, etc. | 17,101 |
| Bills | 1,101 |
| Reports | 106 |

BOARD OF EXAMINERS FOR SURVEYORS

Organization. — The Ninth Board of Examiners for Surveyors was composed of the following:

Mr. Juan Coronado, Chairman

Mr. Antonio Manahan, Member

Mr. Teodosio Trinidad, Member

The Chairman and the two members of the Board qualified and assumed office on January 17, 1938, the date they took oath of office.

Meetings. — The organization meeting of the Board was held in the Office of the Director of Surveys, Bureau of Lands, Manila, on January 17, 1938; no other meetings were held subsequently by the Board during the year.

The following is a resume of the matters considered by the Board in the said meetings:

1. Approval for and attack the measure and survey of stations, no. 10, 11, and 12, in the Province of Batangas, and the corresponding cadastral map in the Bureau and Survey of Station No. 10 was thus approved;

2. Initiated passing grades in the minors and major examinations;

3. Initiated passing grades in the private and executive examinations;

4. Initiated passing grades in the minor examinations;

5. Initiated passing grades in the major examinations;

6. Initiated passing grades in the executive examinations;

7. Initiated passing grades in the minor examinations after a hearing;

8. Examined at the Board and special examinations for practice and to qualify as civil engineers in January 20, 1938, and February 1, 1938, and the examination for the same purpose in June 7-8, 1938.

4. Certificates issued during the year.—During the year the following eighty certificates were issued by the Board pursuant to the provisions of Act No. 3626 as amended by Act No. 3889.

| | |
|----------------------------------|----|
| Mineral and survey certificates | 17 |
| Private land survey certificates | 62 |
| Cadastral and survey r | 1 |

VETERINARY EXAMINING BOARD

1. Organization.—Pursuant to General Memorandum Order No. 30-4 of the Honorable the Secretary of Agriculture and Commerce, the following were appointed members of the Board for the year 1938:

Dr. Teodulo Tapaco, Chairman
Dr. Pedro S. Sales, Member
Dr. F. P. Turia, Member

It will be observed that no change in the membership of the Board for 1937 was made in 1938.

2. Applications and examinations.—The Commissioner of Civil Service conducted the examination given by the Board in his capacity as executive officer under section 10 of Act No. 4097. The Board gave only one examination on May 19-21, 1938 in Manila and in Cebu. Seven applications were received and approved by the Board but only five applicants actually took the examination, all of whom passed. The examination in Cebu was held through a special arrangement with the Examining Division of the Bureau of Civil Service.

3. Registration.—Five new veterinarians were registered by the Board during the year under review.

NATIONAL RESEARCH COUNCIL

No report on the accomplishments of the National Research Council is being submitted inasmuch as the jurisdiction over the same was transferred to the Office of the President effective January 1, 1938 by virtue of Commonwealth Act No. 245.

FINANCIAL STATEMENT

The following tables show the comparative statements of expenditures of the Department of Agriculture and Commerce, together with the bureaus and offices under it from January 1 to December 31, 1938.

ANNUAL REPORT OF THE SECRETARY

DEPARTMENT OF AGRICULTURE AND COMMERCE

Comparative statement of expenditures, period ended December 31, 1938

| Item | January 1 to December 31 | | |
|---|--------------------------|--------------|-------------------------------|
| | 1938 | 1937 | Per cent Increase or decrease |
| Salaries and wages | 2,614,034 | 2,614,034 | + 68.41 + 52 |
| Salaries | 2,614,034 | 2,614,034 | + 68.41 + 52 |
| Employees' benefits | 3,720 | 3,720 | + 2.73 + 50 |
| Employment costs | 2,614,034 | 2,614,034 | + 68.41 + 52 |
| Supplies | 1,605 | 1,605 | + 100.00 + 13 |
| Fuel and power | 1,712,270 | 62,048 | + 2,712.270 - 100.00 |
| Depreciation | 1,484,320 | 9,178 | + 1,484.320 - 100.00 |
| Postage, telephone, telegraph, automatics, etc. | 61,624 | 61,624 | + 26.11 + 75 |
| Equipment | 4,101 | 4,101 | + 2.48 + 27 |
| Special and revolving funds | 1,000 | 1,000 | + 2.00 + 55 |
| Grand total | 6,523,111.02 | 4,866,746.90 | + 1,624,364.12 |

Statement of appropriations and expenditures for the year 1938

| | Total appro- | Total expend- | Balance at the |
|-------|--------------|---------------|-----------------|
| | riation for | iture to be | end of the year |
| | Peso | Peso | Peso |
| Total | 8,438,001.59 | 6,523,111.02 | 1,914,890.57 |

OFFICE OF THE SECRETARY AND SPECIAL DIVISIONS

Comparative statement of expenditures period ended December 31, 1938

| Item | January 1 to December 31 | | |
|---|--------------------------|--------------|-------------------------------|
| | 1938 | 1937 | Per cent Increase or decrease |
| Salaries and wages | 8,438,001.59 | 1,605 | + 52.61 + 81 |
| Salaries | 8,438,001.59 | 1,605 | + 52.61 + 81 |
| Employees' benefits | 6,523,111.02 | 6,523,111.02 | + 0.00 + 0.00 |
| Employment costs | 2,614,034 | 2,614,034 | + 68.41 + 52 |
| Supplies | 1,484,320 | 9,178 | + 1,484.320 - 100.00 |
| Fuel and power | 14,624 | 2,048 | + 14.624 - 82 |
| Depreciation | 1,000 | 1,000 | + 1.000 + 0.00 |
| Postage, telephone, telegraph, automatics, etc. | 286,611.02 | 3,103.47 | + 283,507.55 |
| Equipment | 4,101 | 4,101 | + 4,101 + 0.00 |
| Grand total | 286,611.02 | 3,103.47 | + 283,507.55 |

Statement of appropriations and expenditures for the year 1938

| | Total appro- | Total expend- | Balance at the |
|-------|--------------|---------------|-----------------|
| | riation for | iture to be | end of the year |
| | Peso | Peso | Peso |
| Total | 8,438,001.59 | 3,103.47 | 8,434,898.62 |

BUREAU OF PLANT INDUSTRY

Comparative statement of expenditures, period ended December 31, 1938

| Item | January 1 to December 31 | | Change in balance from previous year |
|----------------------------|--------------------------|-----------|---|
| | 1938 | 1937 | |
| Salaries and wages | | | |
| General expenses | 28,271.44 | 23,916.69 | + 4,354.75 |
| Equipment | 4,411.11 | 3,118.88 | + 1,292.23 |
| Travel and entertainment | 1,111.11 | 1,111.11 | + 0.00 |
| Supplies, etc. | 16,744.94 | 12,111.72 | + 4,633.22 |
| Postage, etc. | 1,111.11 | 1,111.11 | + 0.00 |
| Interest | 1,111.11 | 8,594.40 | - 7,483.29 |
| Other | 3,111.11 | 1,111.11 | + 2,000.00 |
| Contribution | 5,111.11 | 5,111.11 | + 0.00 |
| Special and revolving fund | 2,111.11 | 1,111.11 | + 1,000.00 |
| Grand total | 73,434.65 | 69,630.71 | + 3,793.94 |

Statement of appropriations and expenditures for the year 1938

| | Total appropriation for the year | Total expenditure for the year | Balance at the end of the year |
|-------|----------------------------------|--------------------------------|--------------------------------|
| | Period | Period | Period |
| Total | 888,411.75 | 731,234.52 | 157,163.23 |

BUREAU OF ANIMAL INDUSTRY

Comparative statement of expenditures, period ended December 31, 1938

| Item | January 1 to December 31 | | Change in balance from previous year |
|----------------------------|--------------------------|------------|---|
| | 1938 | 1937 | |
| Salaries and wages | | | |
| General expenses | 28,444.55 | 24,442.10 | + 4,002.45 |
| Equipment | 4,461.21 | 3,118.88 | + 1,342.33 |
| Travel and entertainment | 1,111.11 | 1,111.11 | + 0.00 |
| Supplies, etc. | 10,311.11 | 10,188.81 | + 122.30 |
| Postage, etc. | 1,111.11 | 3,211.81 | - 2,100.70 |
| Interest | 3,111.11 | 6,311.11 | - 3,200.00 |
| Other | 3,111.11 | 1,111.11 | + 2,000.00 |
| Contribution | 2,111.11 | 1,111.11 | + 1,000.00 |
| Special and revolving fund | 2,111.11 | 1,111.11 | + 1,000.00 |
| Grand total | 904,154.59 | 721,226.48 | + 182,926.11 |

Statement of appropriations and expenditures for the year 1938

| | Total appropriation for the year | Total expenditure for the year | Balance at the end of the year |
|-------|----------------------------------|--------------------------------|--------------------------------|
| | Period | Period | Period |
| Total | 9,111.54 | 8,444.69 | 1,666.85 |

ANNUAL REPORT OF THE SECRETARY

BUREAU OF FORESTRY

Comparative statement of expenditures, period ended December 31, 1938

| Item | January 1 to December 31 | | |
|--|--------------------------|------------|------------------------------|
| | 1938 | 1937 | (+) Increase (-) Decrease |
| Salaries and wages | Pesos | Pesos | Pesos |
| In kind | 68,064.78 | 66,119.76 | + 1,944.02 |
| Travel expenses | 17,153.52 | 17,153.52 | + 0.00 |
| Furniture and equipment | 2,160.21 | 2,160.21 | + 0.00 |
| Supplies and stores | 80,810.21 | 46,040.40 | + 359,770.81 |
| Postage and telegrams | 12,653.31 | 9,424.24 | + 3,229.07 |
| Interest and taxes | | | |
| Expenditure from receipts automatically appro- | 10,083.28 | 4,128.07 | + 5,955.21 |
| priated | | | |
| Carrying appropriations brought forward from | | | |
| prior years | 148,395.95 | 100,686.70 | + 45,709.25 |
| Cashed total | 1,355,251.89 | 834,176.79 | + 521,776.60 |

Statement of appropriations and expenditures for the year 1938

| | Total appro- | Total ex- | Balance at the |
|-------|-----------------------|-----------------------|--------------------|
| | riated for | penditures for | end of the year |
| Total | Pesos 1,355,251.89 | Pesos 1,355,251.89 | Pesos 83,121.95 |

BUREAU OF LANDS

Comparative statement of expenditures, period ended December 31, 1938

| Item | January 1 to December 31 | | |
|--|--------------------------|--------------|------------------------------|
| | 1938 | 1937 | (+) Increase (-) Decrease |
| Salaries and wages | Pesos | Pesos | Pesos |
| In kind | 601,200.38 | 712,768.90 | - 111,568.52 |
| Travel expenses | 21,119.76 | 17,153.52 | + 3,966.24 |
| Furniture and equipment | 2,147.17 | 12,400.21 | - 10,253.04 |
| Supplies and stores | 116,450 | 126,142.21 | - 9,692.00 |
| Postage and telegrams | 21,719 | 12,384.86 | + 9,334.14 |
| Interest and taxes | 217.62 | 3.66 | + 214.96 |
| Expenditure from receipts automatically appro- | 4,880.61 | 4,689.96 | + 190.65 |
| priated | | | |
| Carrying appropriations brought forward from | | | |
| prior years | 18,486.17 | 7,318.35 | + 11,167.82 |
| Special and revolving funds | 648,137.2 | 3,142.71 | + 644,995.51 |
| Cashed total | 1,869,060.07 | 1,502,426.49 | + 366,623.08 |

Statement of appropriations and expenditures for the year 1938

| | Total appro- | Total ex- | Balance at the |
|-------|-----------------------|-----------------------|---------------------|
| | riated for | penditures for | end of the year |
| Total | Pesos 1,869,060.07 | Pesos 1,502,426.49 | Pesos 366,623.08 |

BUREAU OF SCIENCE

Comparative statement of expenditures, period ended December 31, 1938

| Item | January 1 to December 31 | | |
|---|--------------------------|--------------|--------------------------|
| | 1938 | 1937 | +/- Increase Decrease |
| Salaries and wages | Pesos | Pesos | Pesos |
| Servants and maid | 2,411,530.69 | 2,127,467.70 | + 48,168.99 |
| Postmen, telegraphers, etc. | 1,213.20 | 1,111.68 | + 12.52 |
| Supplies, etc. | 2,145.45 | 6,153.34 | + 64,156.88 |
| Stationery | 65.76 | 61.76 | + 16.00 |
| Furniture, etc. | 5.52 | 2,97.94 | + 2,921.74 |
| Indefinite expenditures | 1,621.47 | 1,891.97 | - 27.50 |
| Extra charges from non-governmental employees | + 29.89 | 26,497.60 | + 20,468.89 |
| Special and revolving funds | | 16,996.48 | 16,996.48 |
| Grand total | 18,065.83 | 419,926.55 | + 39,260.68 |

Statement of appropriations and expenditures for the year 1938

| | Total appro- priations for the year | Total ex- penditure for the year | Balance statis- tical at the end of the year |
|-------|--|--|--|
| | Pesos | Pesos | Pesos |
| Total | 596,186.81 | 565,273.32 | 31,913.49 |

BUREAU OF COMMERCE

Comparative statement of expenditures, period ended December 31, 1938

| Item | January 1 to December 31 | | |
|-----------------------------|--------------------------|-----------|--------------------------|
| | 1938 | 1937 | +/- Increase Decrease |
| Salaries and wages | Pesos | Pesos | Pesos |
| Servants and maid | 3,758.74 | 1,952.92 | + 1,805.82 |
| Postmen, telegraphers, etc. | 5.61 | 40.88 | + 35.27 |
| Supplies, etc. | 1,551.62 | 8,761.61 | + 7,210.98 |
| Stationery | 1.80 | 1.80 | 0.00 |
| Furniture, etc. | 8.75 | 2,25.67 | + 2,17.92 |
| Indefinite expenditures | | 10.64 | - 10.64 |
| Special and revolving funds | 8,084.62 | 48,013.94 | + 39,929.32 |
| Grand total | 20,836.11 | 21,626.19 | + 42,498.88 |

Statement of appropriations and expenditures for the year 1938

| | Total appro- priations for the year | Total ex- penditure for the year | Balance at the end of the year |
|-------|--|--|-----------------------------------|
| | Pesos | Pesos | Pesos |
| Total | 271,446.20 | 257,894.06 | 13,549.16 |

WEATHER BUREAU

Comparative statement of expenditures period ended December 31, 1938

| Item | January to December | | |
|--------------------------|---------------------|-----------------|-------------------|
| | 1938 | 1937 | Percent change |
| Salaries and wages | Pesos 12,747 | Pesos 14,788 | + 18.85% 74 |
| Supplies | 1,200 | 1,200 | + 0.00% |
| Traveling expenses | 2,443 | 3,100 | - 21.03% |
| Postage | 2,200 | 2,200 | + 0.00% |
| Fees | 2,965 | 3,100 | - 4.48% |
| Other operating expenses | 2,000 | 2,000 | + 0.00% |
| General | 8,200 | 8,200 | + 0.00% |

Statement of appropriations and expenditures for the year 1938

| Type | January to December | | Balance at the end of the year |
|-------|---------------------|--------------------|--------------------------------|
| | Total | Expenditure | |
| Total | Pesos 88,200.00 | Pesos 88,200.00 | Pesos 0.00 |

BUREAU OF MINES

Comparative statement of expenditures period ended December 31, 1938

| Item | January to December | | |
|--------------------|---------------------|----------------|-------------------|
| | 1938 | 1937 | Percent change |
| Salaries and wages | Pesos 6,744 | Pesos 6,744 | + 0.00% |
| Supplies | 4,400 | 4,400 | + 0.00% |
| Fees | 1,000 | 1,000 | + 0.00% |
| Traveling expenses | 1,000 | 1,000 | + 0.00% |
| General | 261.8 | 1,800 | - 66.94% |

Statement of appropriations and expenditures for the year 1938

| Type | January to December | | Balance at the end of the year |
|-------|---------------------|---------------------|--------------------------------|
| | Total | Expenditure | |
| Total | Pesos 261,863.16 | Pesos 261,863.16 | Pesos 0.00 |

FIBER INSPECTION SERVICE

Comparative statement of expenditures period ended December 31, 1938

| Item | January 1 to December | | |
|--------------------|-----------------------|----------------|-------------------|
| | 1938 | 1937 | Percent change |
| Salaries and wages | Pesos 8,150 | Pesos 8,150 | + 0.00% |
| Supplies | 2,000 | 2,000 | + 0.00% |
| Fees | 4,400 | 2,000 | + 120.00% |
| General | 500 | 500 | + 0.00% |

FIBER INSPECTION SERVICE—Continued

Statement of appropriations and expenditures for the year 1958

| | Total appropriation for the year | Total expenditure for the year | Balance at the end of the year |
|-------|----------------------------------|--------------------------------|--------------------------------|
| | Pesos | Pesos | Pesos |
| Total | 204,015.29 | 185,626.72 | 18,491.17 |

RECOMMENDATIONS

The Department of Agriculture and Commerce with the means and facilities at its command has always endeavored to make its activities of utmost utility to the people in the solution of their economic problems. Undoubtedly, the results of its manifold activities have contributed in a large measure to the advancement of science, agriculture, and industry in the country. It is felt, however, that at the present stage of the country's economic development, the efficiency and usefulness of the Department should be enhanced by all possible means. For this purpose the following recommendations are respectfully submitted:

1. Reorganization of the Bureau of Lands with a view to simplifying and expediting action on land conflicts threshed out in the said Bureau.
2. Purchase of speed boats for the use of this Department in its campaign to curtail or at least minimize illegal fishing within the territorial waters of the Philippines.
3. Disposition by sale of the premises and buildings presently occupied by the Bureau of Plant Industry and acquisition with the proceeds thereof of a larger and more ideal site to which the Bureau of Plant Industry may be transferred so as to provide adequate space for its expanding activities.
4. Sending of more technical men abroad to study the progress in science and the advances in industries made in other countries of the world.
5. Increased appropriation for the different bureaus and offices under this Department so that adequate facilities may be secured and the forces strengthened to cope with the expanding activities of the Department in line with the country's economic development program.
6. Establishment of a School of Fishery for the training of Filipino citizens in modern and scientific methods of fishing and other phases of marine products utilization, especially in the line of deep-sea fishing.

7. Support of the Administration for the following bills submitted by this Department which embody changes for the improvement of the service:

- (1) Bill authorizing the President of the Philippines to sell certain Insular Government properties in the City of Manila, and to dispose, expend, and/or invest the proceeds of the sale thereof for the benefit of the Bureau of Plant Industry.
- (2) Bill providing for the establishment and operation of a Central Agricultural Experiment Station and regional experimental stations and substations, and appropriating funds therefor.
- (3) Bill providing for the promotion of the horse industry in the Philippines through the establishment, equipment, maintenance, and operation of breeding stations and stock farms for horses and providing funds therefor, and through compulsory castration of undesirable horses and prescribing penalties for failure to castrate the same.
- (4) Bill creating an Institute of Scientific and Industrial Research (Bureau of Science).
- (5) Bill requiring inspection of all timber and lumber exports by the Bureau of Forestry and providing for necessary personnel therefor. The main purpose of this Act is to safeguard the Philippine lumber industry and stop complaints received from foreign importers from time to time to the effect that Philippine lumber received by them from local exporters is not properly graded.
- (6) Bill amending section 1829 of the Revised Administrative Code. The purpose of this amendment is to make the provisions applicable not only to forest lands but also to all private woodlands in conformity with section 13 of the same Code and to enable the Government to collect forest charges from agricultural lands where timber is found and forest products gathered.
- (7) Bill further amending section 2751 of the Revised Administrative Code, as amended by Act No. 3314. The object of the amendment is to provide graduated and increased penalties for illegal occupation of forest lands and destruction of forest growth.
- (8) Bill amending sections 1 and 3 of Commonwealth Act No. 304, entitled "An Act to provide for the reforestation and afforestation of watersheds, denuded areas, and cogon or open lands within forest reserves, communal forests, national parks and timberlands, sand dunes, and other public forest lands, in the Philippines, and providing the necessary funds therefor."
- (9) Bill consolidating the administration of public lands suitable for pasture in the Bureau of Forestry, regulating their occupancy and use, etc.

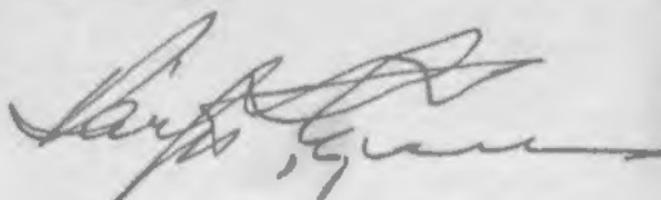
- (10) Bill amending section 9 of Commonwealth Act No. 192 by making collections in the National Produce Exchange available for its operating expenses.
- (11) Bill providing a fixed unit of weight and measure for rice and palay, and prescribing penalties for violations thereof, etc.
- (12) Bill amending section 71 of Act No. 1450, known as the Corporation Law, by adding thereto a provision requiring corporations not formed, organized, or existing under the laws of the Philippines, duly licensed to do business in the Philippines, to submit yearly to the Director of Commerce, certain reports and statements regarding their financial conditions, etc.
- (13) Bill declaring misbranded and mislabelled articles prohibited articles, defining mislabelling and misbranding, declaring misbranded and mislabelled articles subject to seizure and destruction, designating the Director of Commerce as administrator of the Act, punishing resistance to the Director of Commerce and his agents, making the necessary appropriations, etc.
- (14) Bill authorizing the Secretary of Agriculture and Commerce to establish, adopt, and prescribe national official standards and classifications of agricultural products, to enforce the provisions of the same and appropriating funds therefor.
- (15) Bill amending Commonwealth Act No. 331 entitled "An Act authorizing the President of the Philippines, in aid of the establishment and operation of a petroleum and natural gas industry, to call bids and award and execute contracts for the exploration, exploitation and development of petroleum and natural gas deposits in private and public lands in the Philippines, subject in all cases to the express approval of the National Assembly."
- (16) Bill amending section 6 of Act No. 3626, as amended, entitled "An Act to regulate the practice of surveying, create a Board of Examiners for Surveyors, define its powers and duties, and appropriating funds for this purpose."
- (17) Bill amending sections 1777, 1779, 1782, 1783 and 1786 of the Revised Administrative Code, as amended by Act No. 3263 and section 31 of Act No. 4007, concerning fiber grading permits, registration of marks, and baling of fibers for export.
- (18) Bill amending Act No. 2590 to make more effective the protection and conservation of game and birds.

ACKNOWLEDGMENTS

The appointment of the undersigned to this Department during the latter part of the year under review has afforded him an

opportunity to submit this report on the activities and accomplishments of this Department and make public in writing his personal appreciation for the cordial attitude accorded him by His Excellency, the President of the Philippines, and the Secretaries and Directors of other departments and bureaus of the Commonwealth. The undersigned also wishes to make personal acknowledgment of the unselfish coöperation and loyalty of the Under Secretary of Agriculture and Commerce, directors of bureaus, and chiefs of offices under this Department, including its humblest employees, who have creditably discharged their respective duties.

Respectfully submitted,



James C. Bryan
Secretary of Agriculture and Commerce

